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Kontakt

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Graduate Program in Music
A thesis submitted in partial fulfillment of the requirements for the degree in Master of Music

KONTAKT

(Thesis format: Score)

by

Michael Lukaszuk

Graduate Program in Music

A thesis submitted in partial fulfillment
of the requirements for the degree of
Master in Music Composition

The School of Graduate and Postdoctoral Studies
The University of Western Ontario
London, Ontario, Canada

Abstract

Kontakt is a c. 14-minute composition for string orchestra and audio signal processing that deals with imitation and ensemble communication. The first and third section of the piece are comprised of a series of sound objects. The second section uses one of these objects to create a collection of palindromic motives, phrases and subsections. The pitch material in my thesis composition consists of a slowly evolving cell containing three intervals at a time. The piece uses Max/MSP software to create delay networks, live recording and playback of audio material, harmonization of live material, and quadraphonic sound diffusion. In *Kontakt*, imitation is explored using canonic, spatial, textural, and timbral effects. A three-part interplay consisting of 1) performing acoustic material, 2) digital processing and 3) interpretation of the processed material creates a deep connection between the acoustic and electroacoustic elements in the piece.

Keywords

Kontakt, electroacoustic music, divided string orchestra, Canadian music

Acknowledgments

Thank you to Dr. Omar Daniel for acting as my thesis advisor and for his invaluable guidance and support throughout my program of study. Thanks also to Dr. David Myska for his many helpful recommendations in acting as my second reader.

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(2013)

String Orchestra and audio signal processing

Michael Lukaszuk

Kontakt

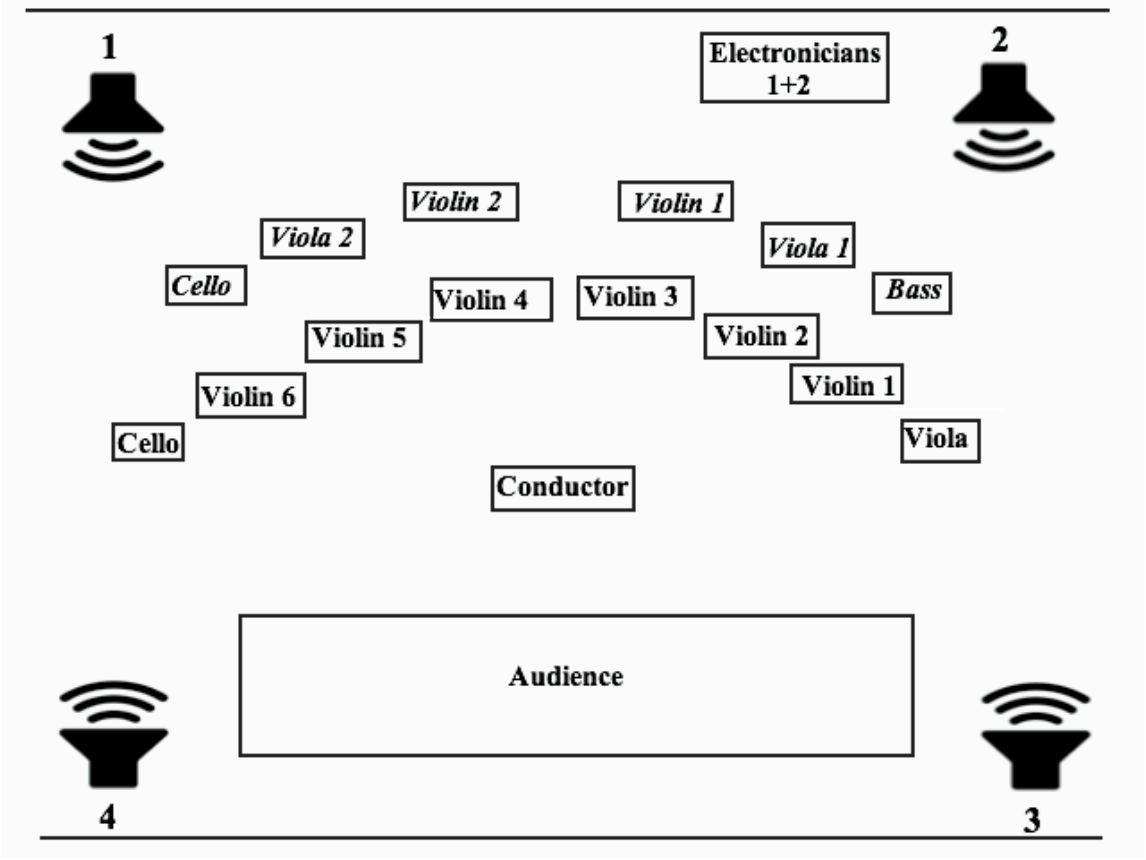
Instrumentation

8 violins, 3 violas, 2 cellos, 1 double bass
Divided in two groups

Group 1	**Group 2**
6 violins	2 violins
1 viola	2 violas
1 cello	1 cello
	1 double bass
	2 electronicians

Two electronicians will process audio from group 2.

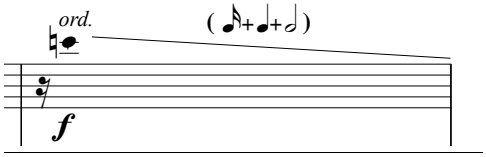
Suggested Seating Arrangement



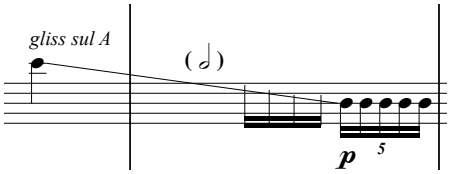
Groups are arranged in two semicircles. Instruments belonging to Group 2 appear in italics in the above diagram.

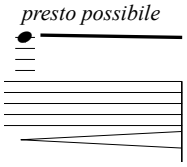
Notation

Accidentals carry through the measure.

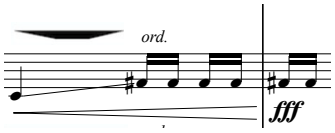


The note heads in parentheses indicate how long the gliss. should last. This gliss. should last as long as the combination of a sixteenth, quarter and half note. Do not rearticulate unless a change of bow direction is necessary, or the following notation is used:

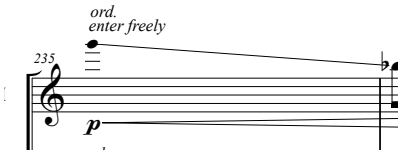




Rearticulate this note as fast as possible until the line ends.

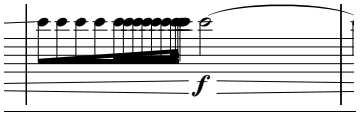


Excessive/Extreme bow pressure to create a scratchy sound.



Start playing this note at a random point in the measure.

Gradually change from one mode of execution to the next.



A beam that thickens over time into three beams indicates an unmeasured accelerando. During such passages the performer should not concern themselves with playing the exact number of notes on the page.

The Electroacoustic Component

Electronician 1 is given a variety of cues throughout the piece. All of these are to be executed using a Behringer BCF2000 MIDI control surface (or a controller with similar features). Electronician 1 manipulates a Max/MSP patch to affect the delay times, reverb decay time, computer generated transpositions of audio material, live recording, playback and sound diffusion. All cues list information in the following order:

Cue 1 – all channels
Record buffer A until----------
Delay Times – 1 = __ms , 2 = __ms , 3 = __ms
Feedback = _
Reverb Decay time =__ms
Transposition - Major 2nd above
Spatio = 1 + 2

The first line in a cue indicates which of the six input channels will be active during the processing.

The input channels should be assigned as follows:

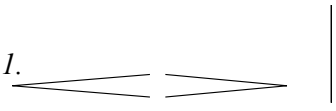
Group 2

Violin 1 = Channel 1
Violin 2 = Channel 2
Viola 1 = Channel 3
Viola 2 = Channel 4
Cello = Channel 5
Double Bass = Channel 6

The last line in a cue indicates which of the four loudspeakers will be used.

Electronician 2 controls the loudspeaker output levels using a mixing console or similar audio interface. Levels are notated using standard dynamic markings (i.e. *mp, ff*)and crescendo/decrescendo hairpin signs. All output gains are equal unless a specific number appears above a hairpin.

e.g.:



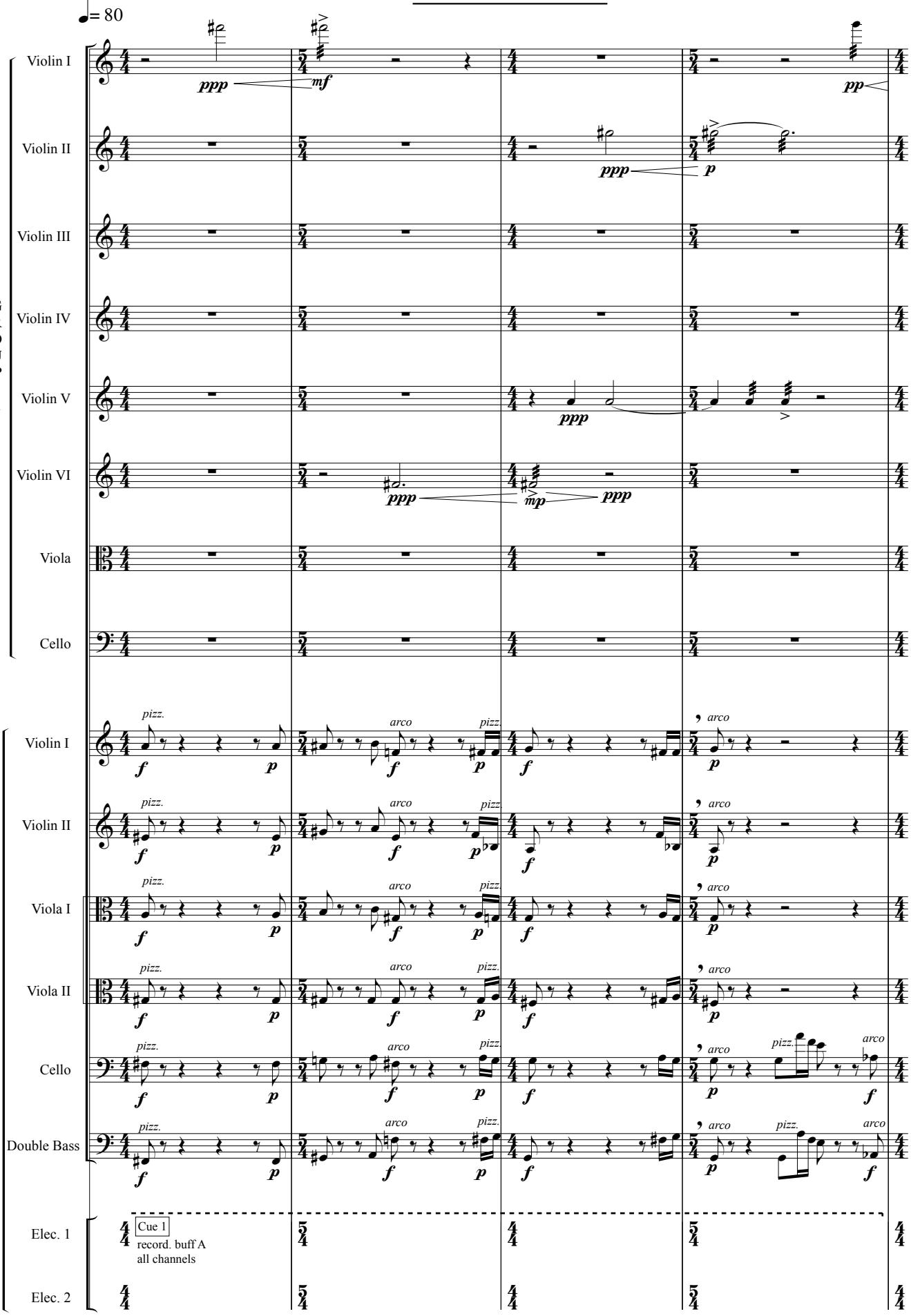
Raise and lower the output gain for speaker 1. Gains for other output channels that may be active are not to be altered.

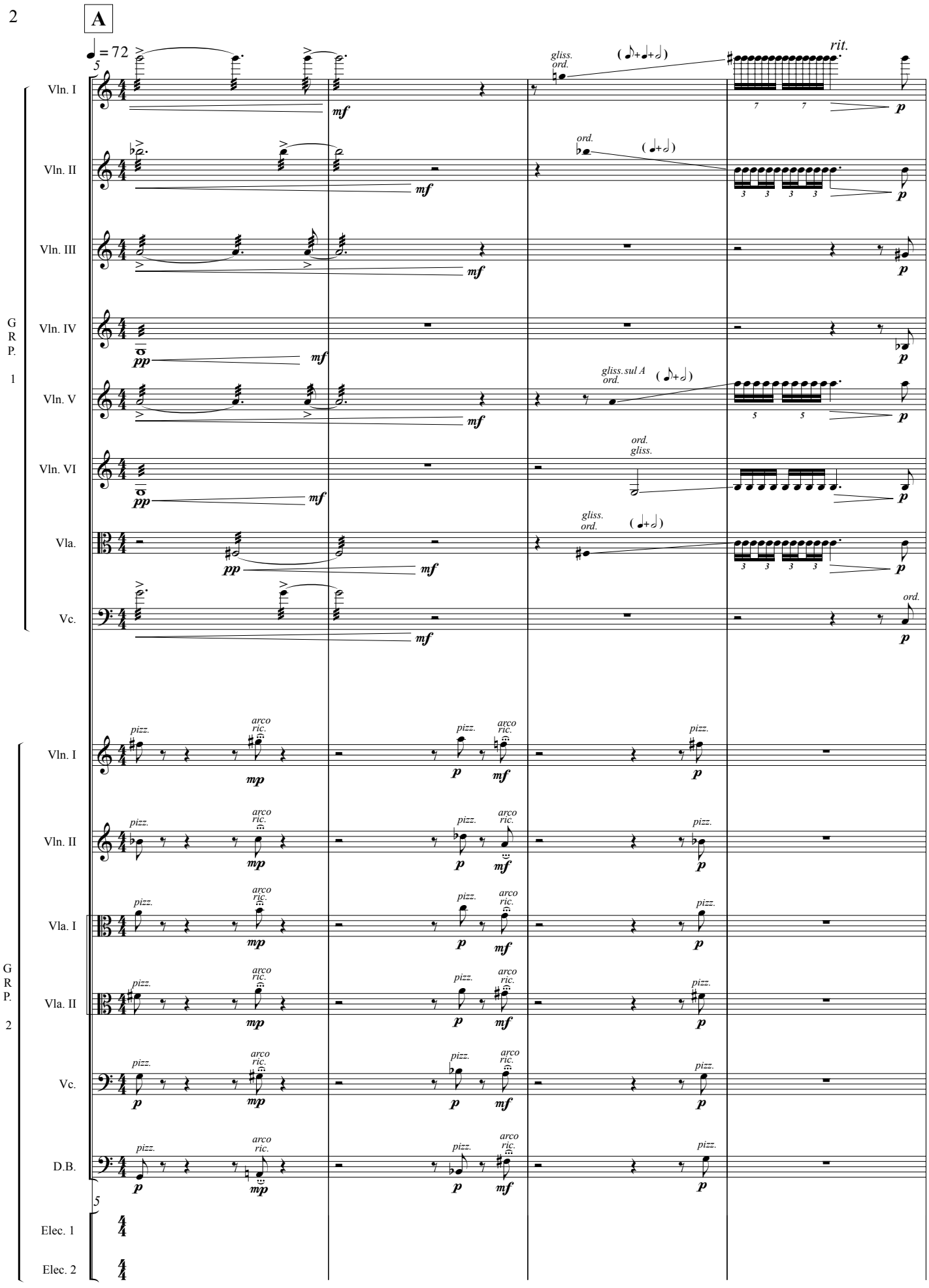
Please refer to the Max/MSP patch for more information on setup and performing cues. Contact Michael Lukaszuk to obtain a copy of the Max/MSP patch.

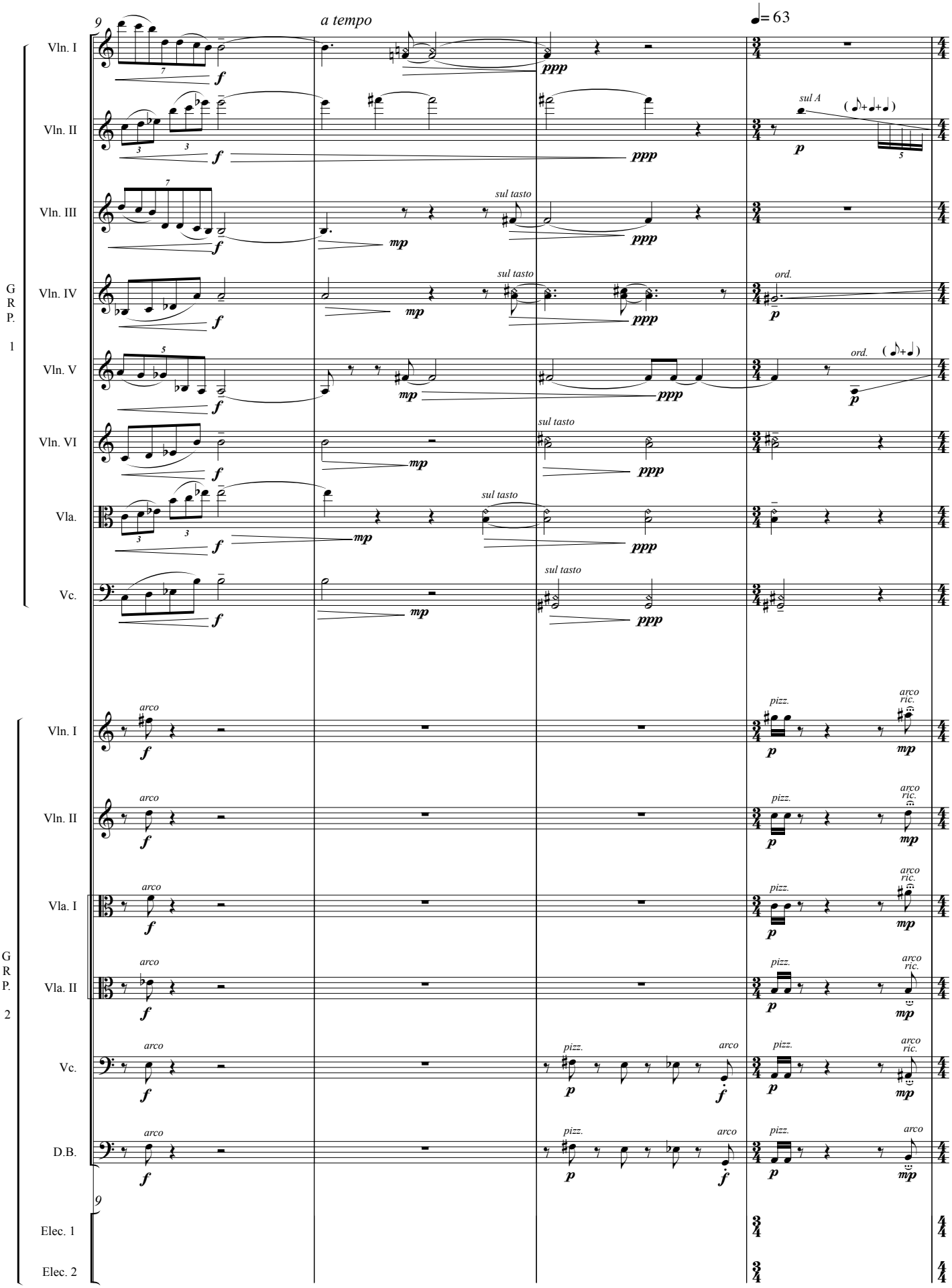
Duration approximately 14:00

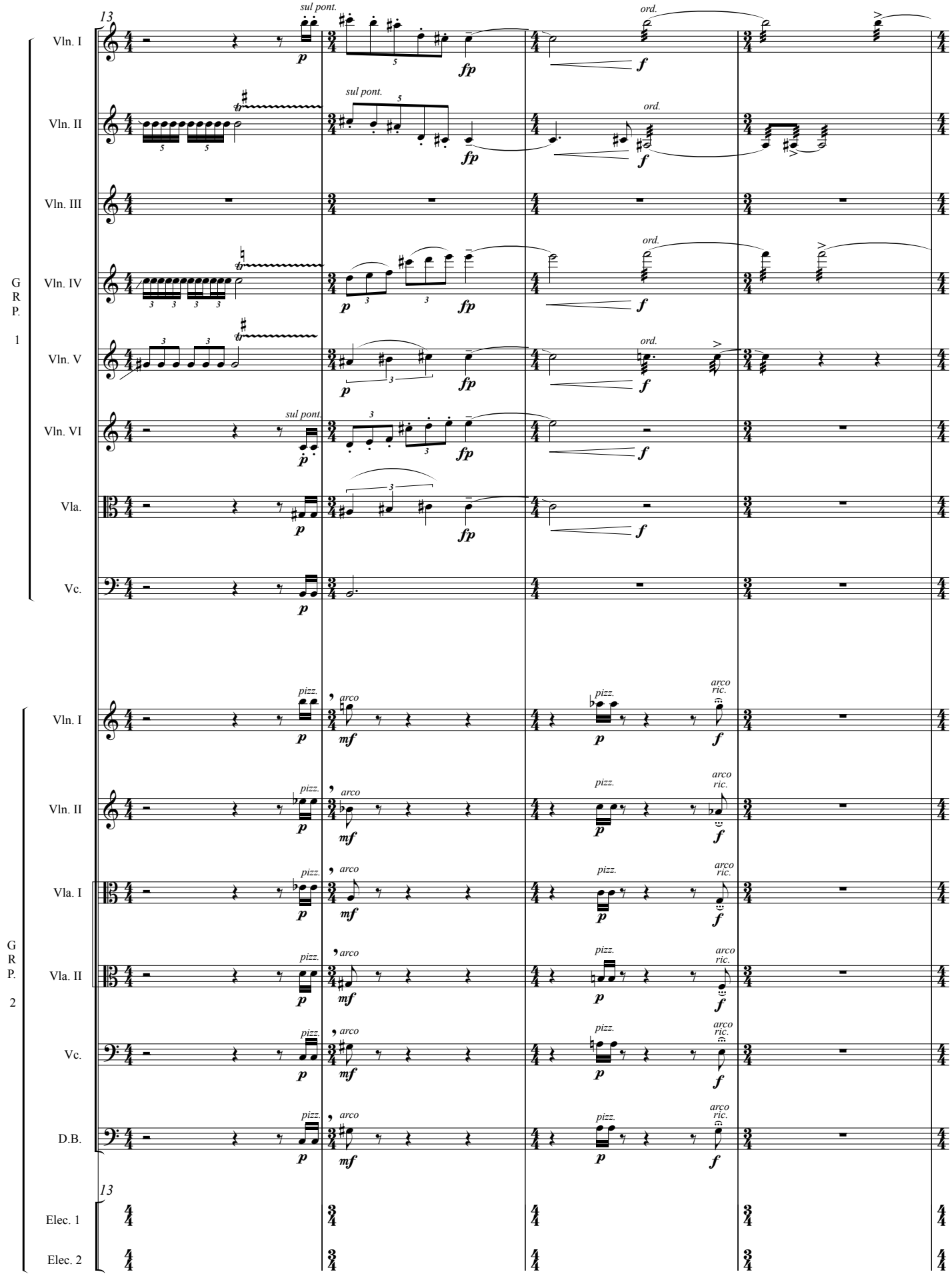
Kontakt

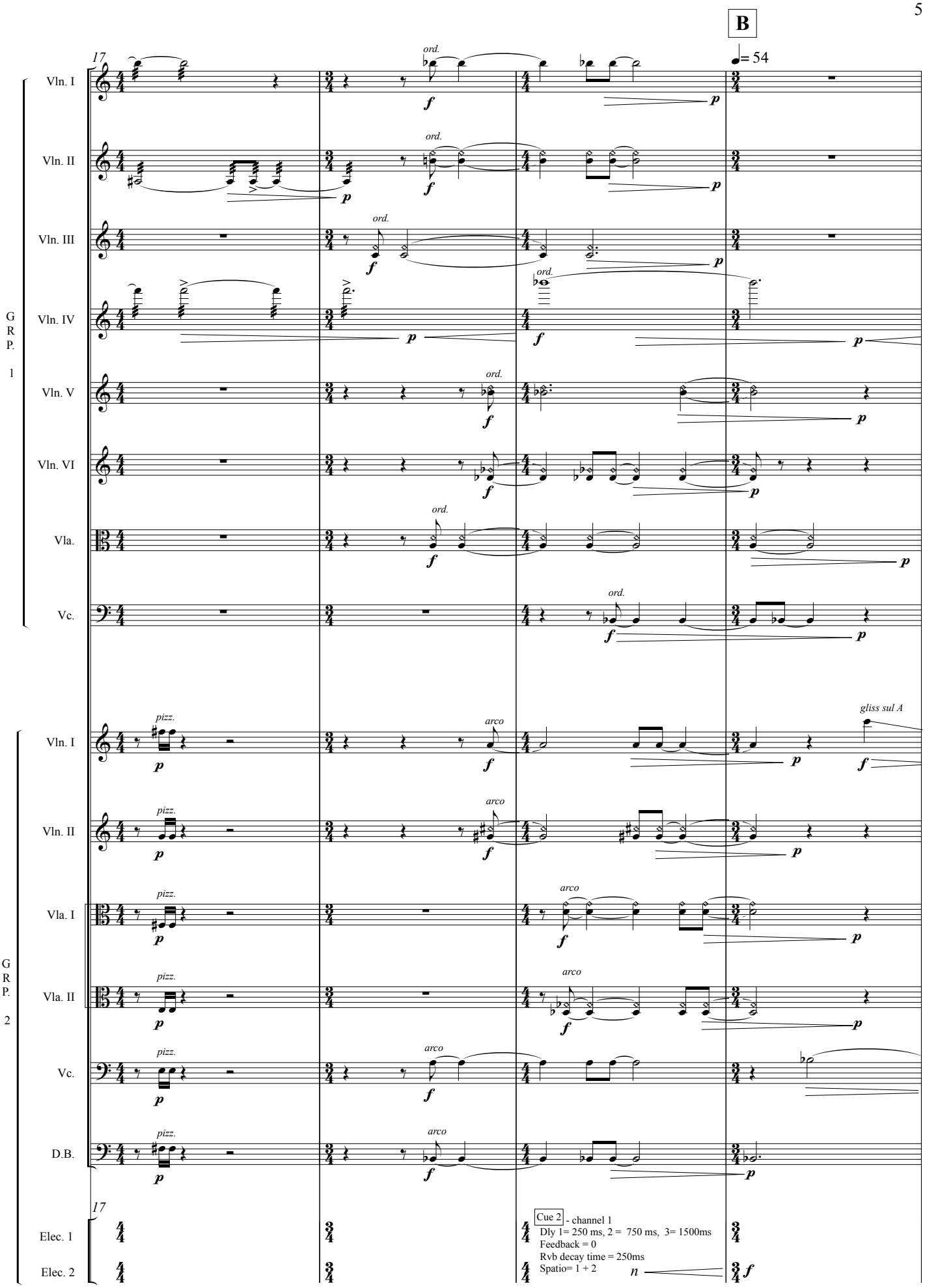
Michael Lukaszuk (b.1989)

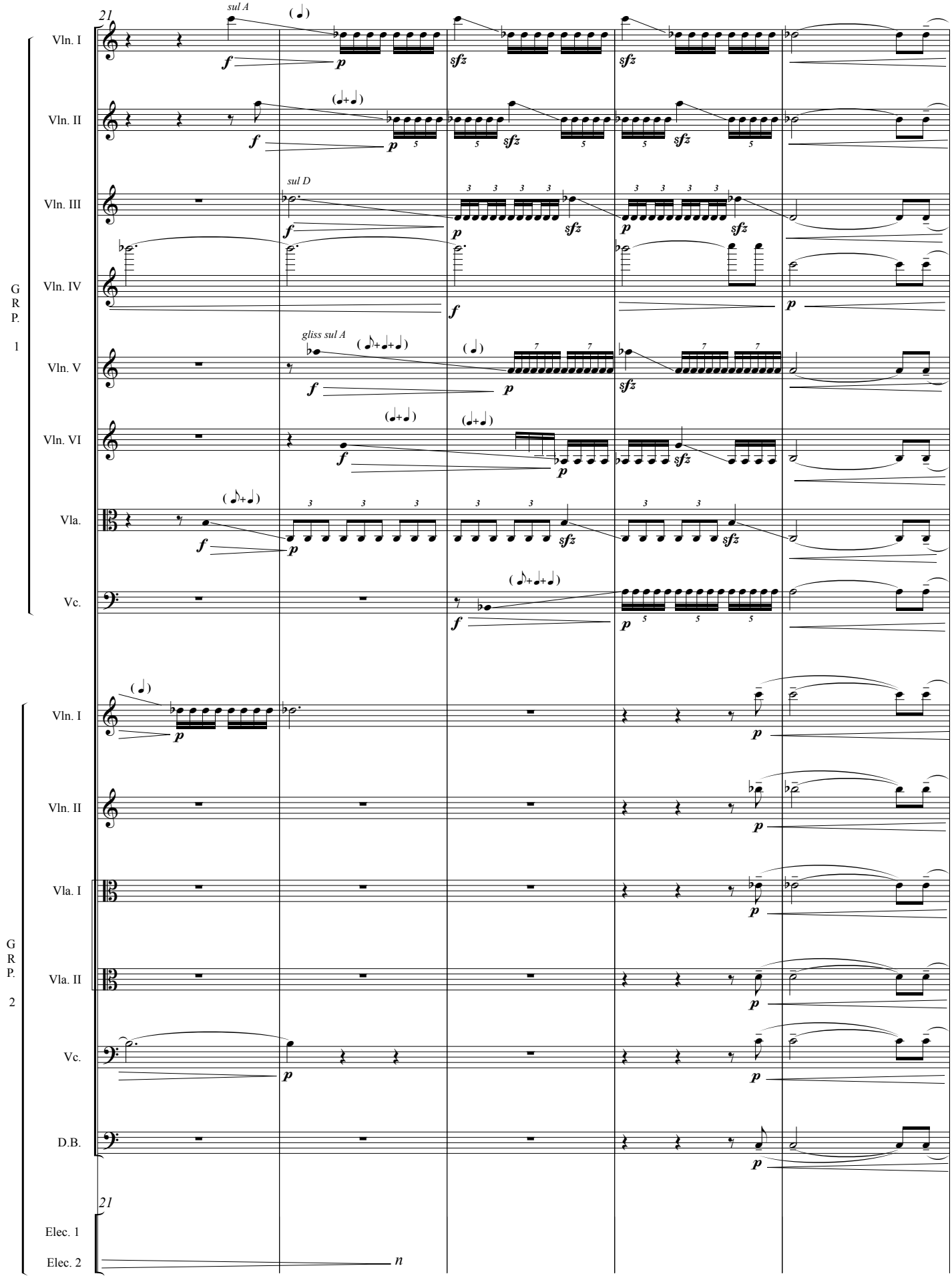



A
♩ = 72
rit.
GRP. 1
GRP. 2
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
Vla. I
Vla. II
D.B.
Elec. 1
Elec. 2
pizz.
arco ric.
ord.
gliss.
gliss.sul A
mf
mp
p
pp


9
a tempo
♩= 63
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul A
sul tasto
ord.
arco
pizz.
arco ric.
Vla. I
Vla. II
GRP. 2
D.B.
Elec. 1
Elec. 2


13
GRP. 1
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
sul pont.
ord.
GRP. 2
Vla. I
Vla. II
D.B.
pizz.
arco
arco ric.
Elec. 1
Elec. 2


B
17
♩= 54
GRP. 1
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
ord.
GRP. 2
Vla. I
Vla. II
D.B.
pizz.
arco
gliss sul A
Elec. 1
Elec. 2
Cue 2 - channel 1
Dly 1= 250 ms, 2 = 750 ms, 3= 1500ms
Feedback = 0
Rvb decay time = 250ms
Spatio= 1 + 2


21
sul A
sul D
gliss sul A
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
21
Elec. 1
Elec. 2
n

C

26

♩ = 72

GRP. 1

Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.

pizz.

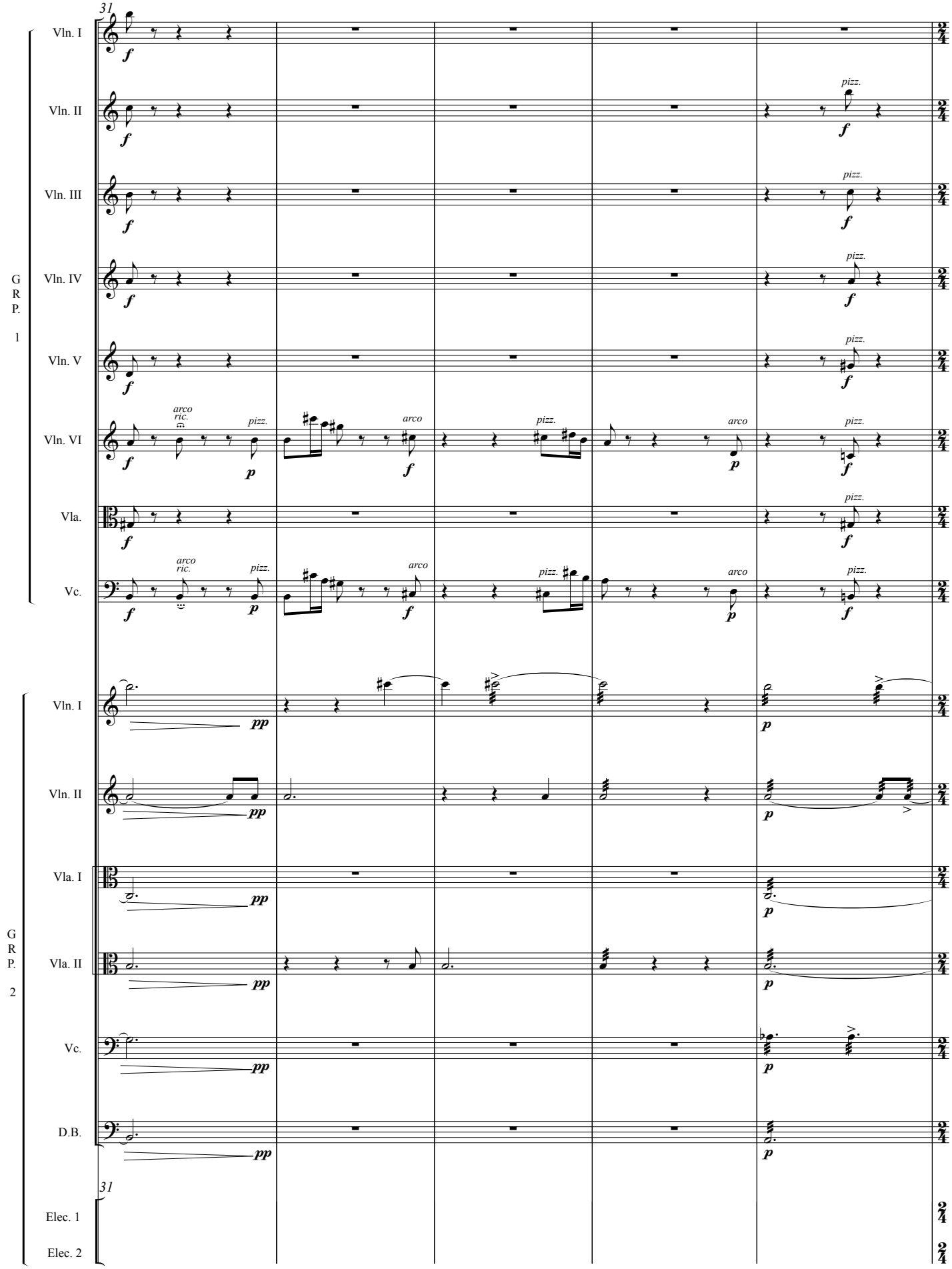
GRP. 2

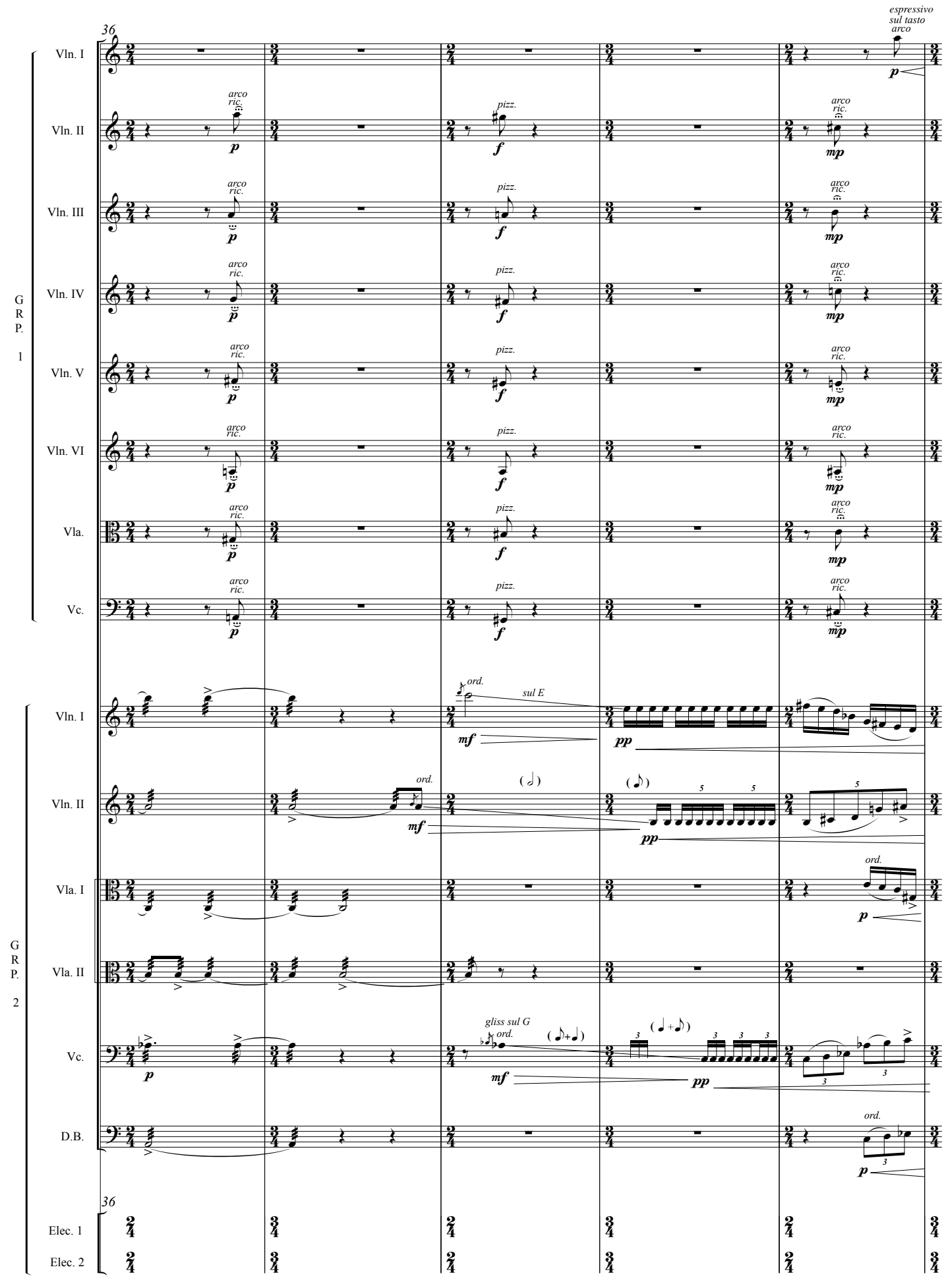
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.

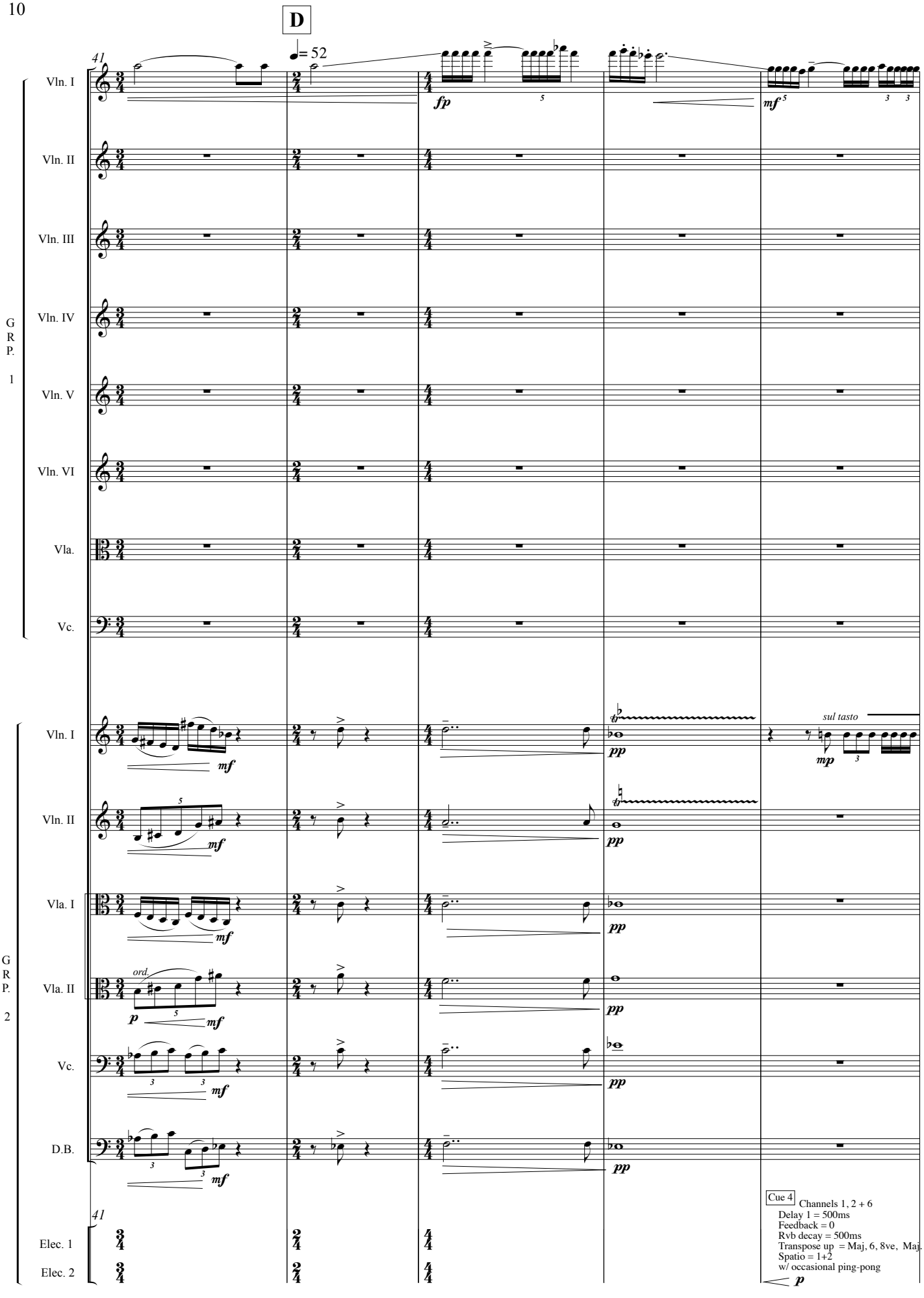
gliss sul A
gliss sul C
gliss sul G

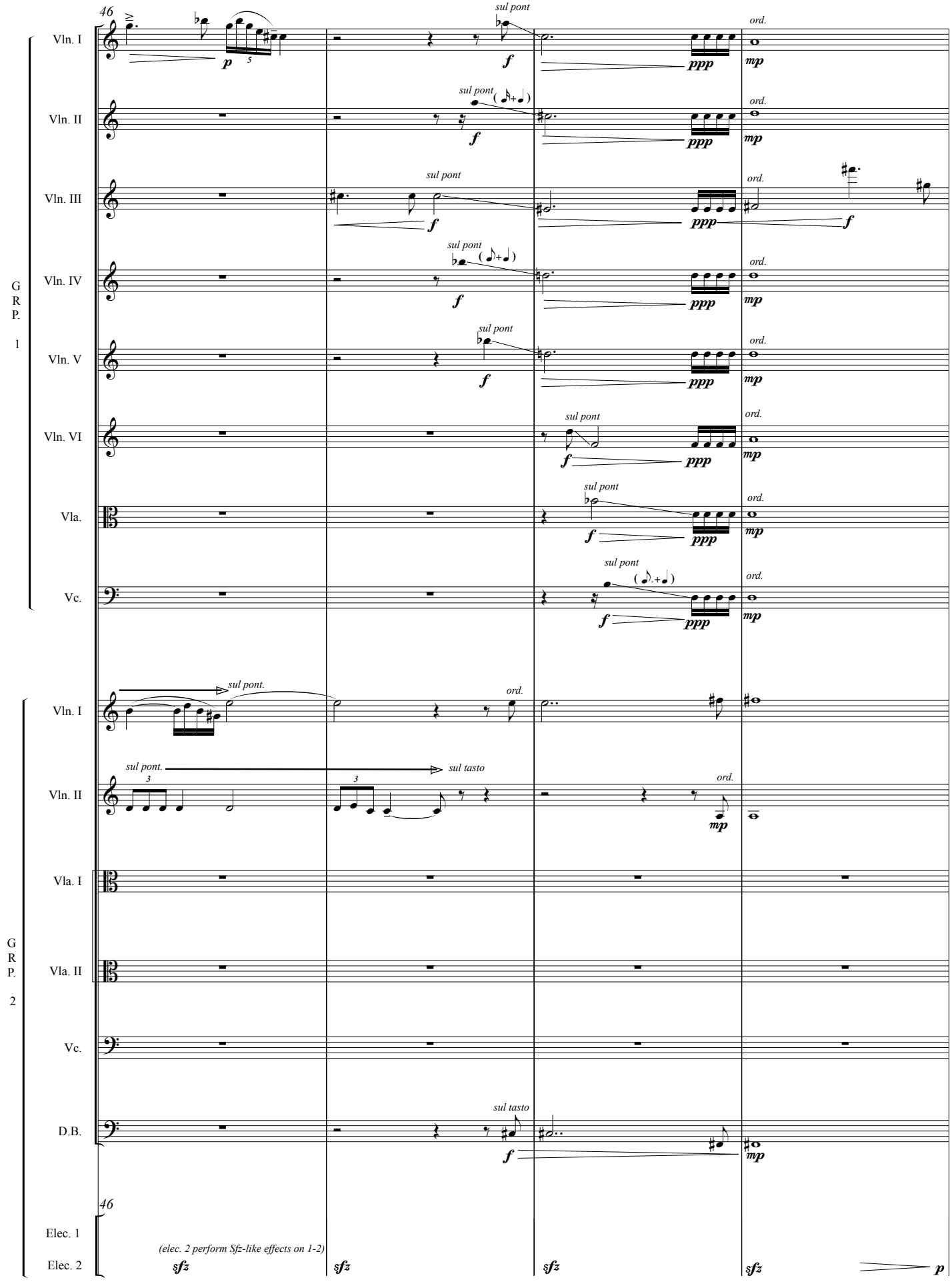
Elec. 1
Elec. 2

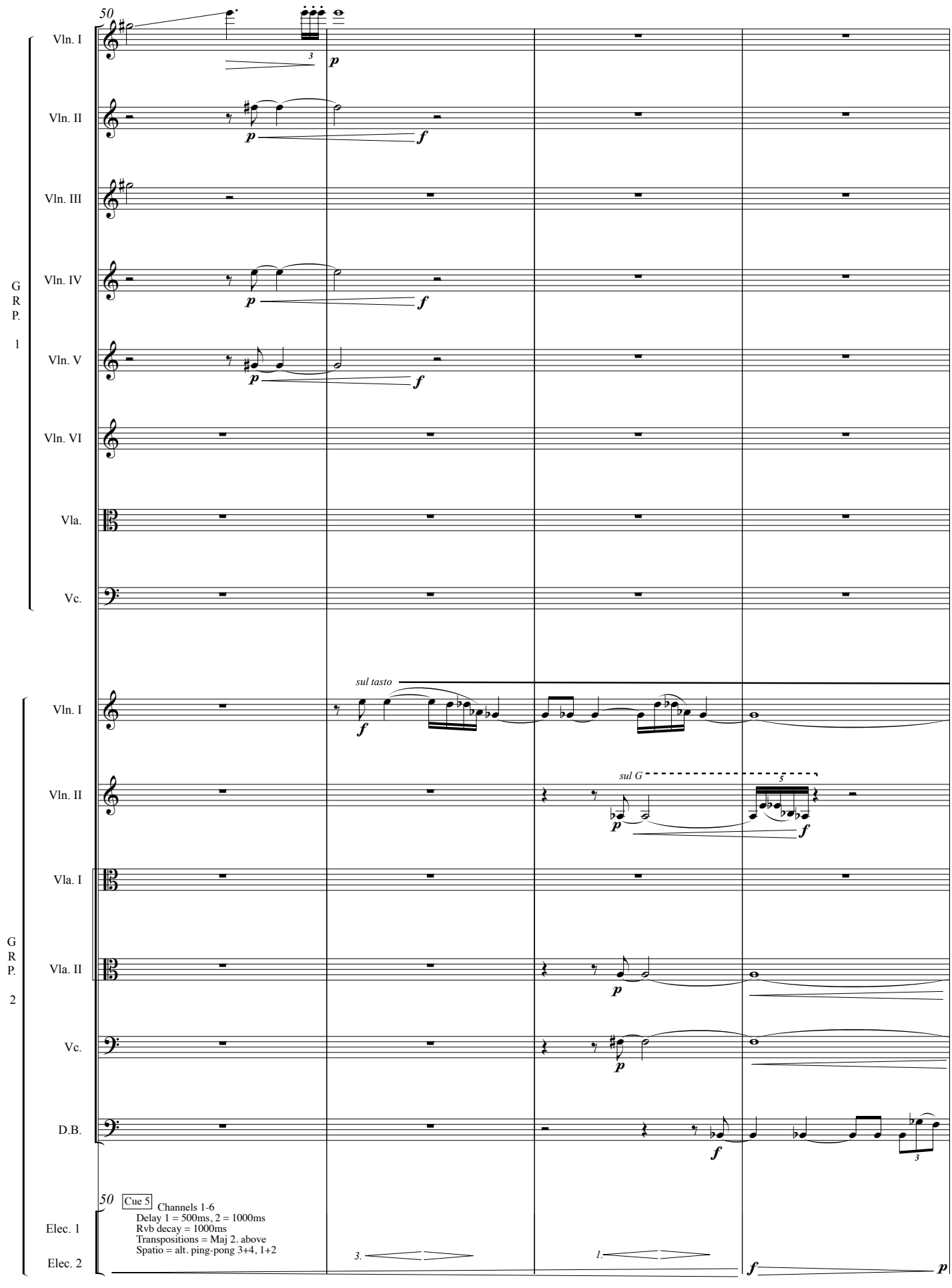
Cue 3 Channels 2-6
Dly 1= --->> 1500ms until m.30
Feedback = 1.5
Rvb decay time = 500ms
Spatio= rotate 1-4,
change every measure

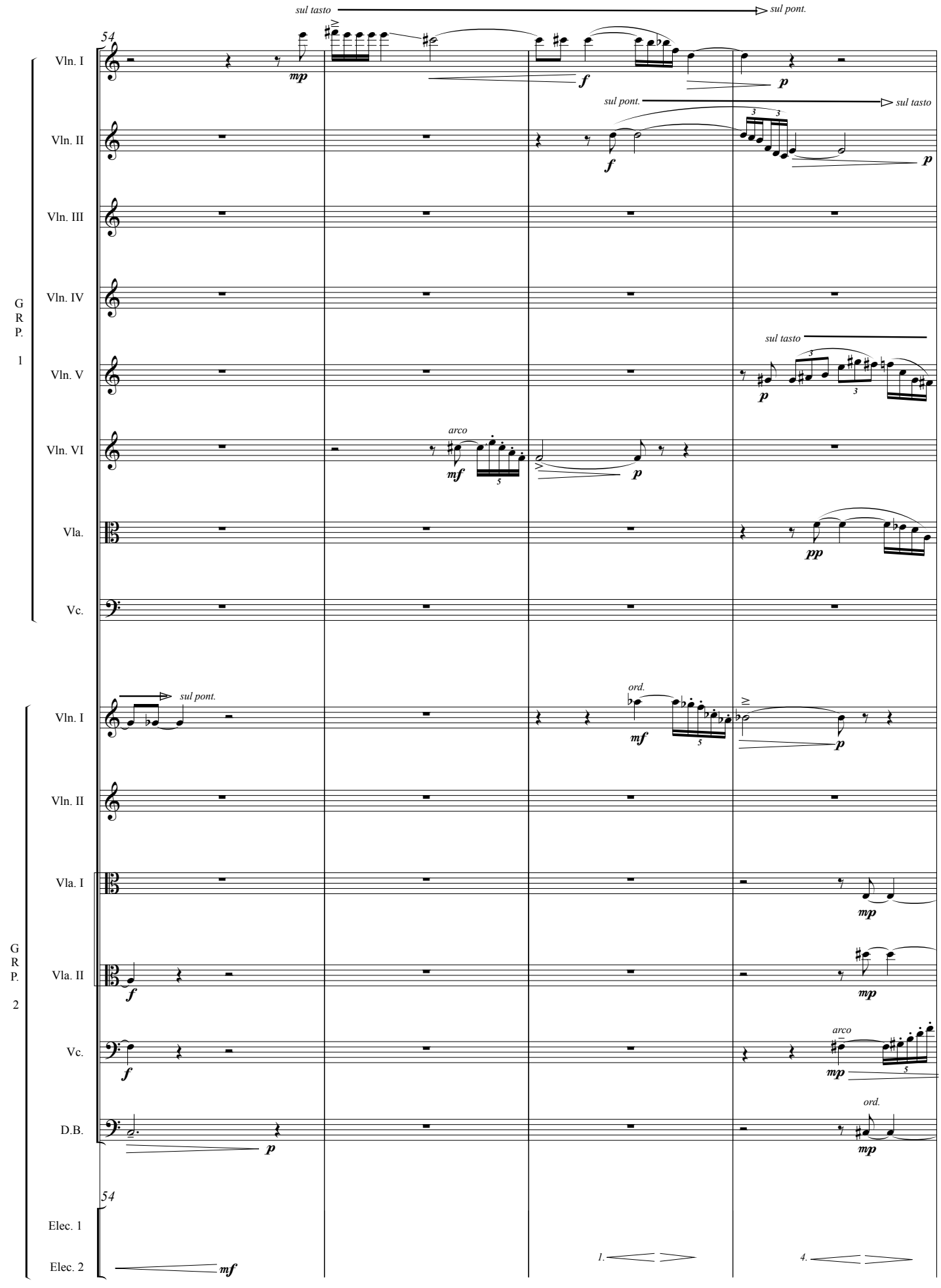

31
GRP. 1
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 2
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
31
Elec. 1
Elec. 2
arco ric.
pizz.
arco
f
p
pp

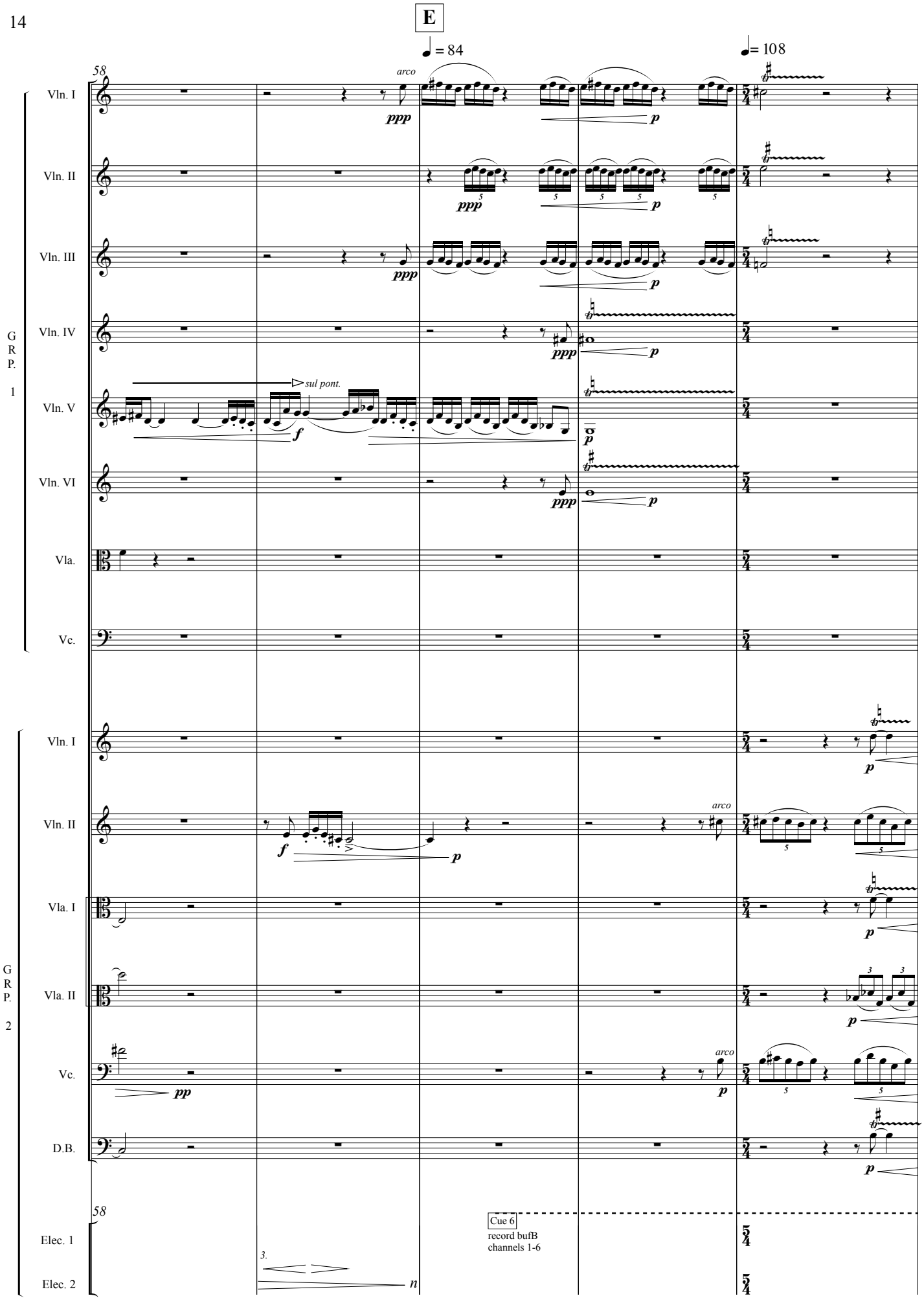

36
espressivo
sul tasto
arco
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
arco ric.
pizz.
p
f
mp
ord.
sul E
mf
pp
gliss sul G
Vla. I
Vla. II
GRP. 2
D.B.
Elec. 1
Elec. 2

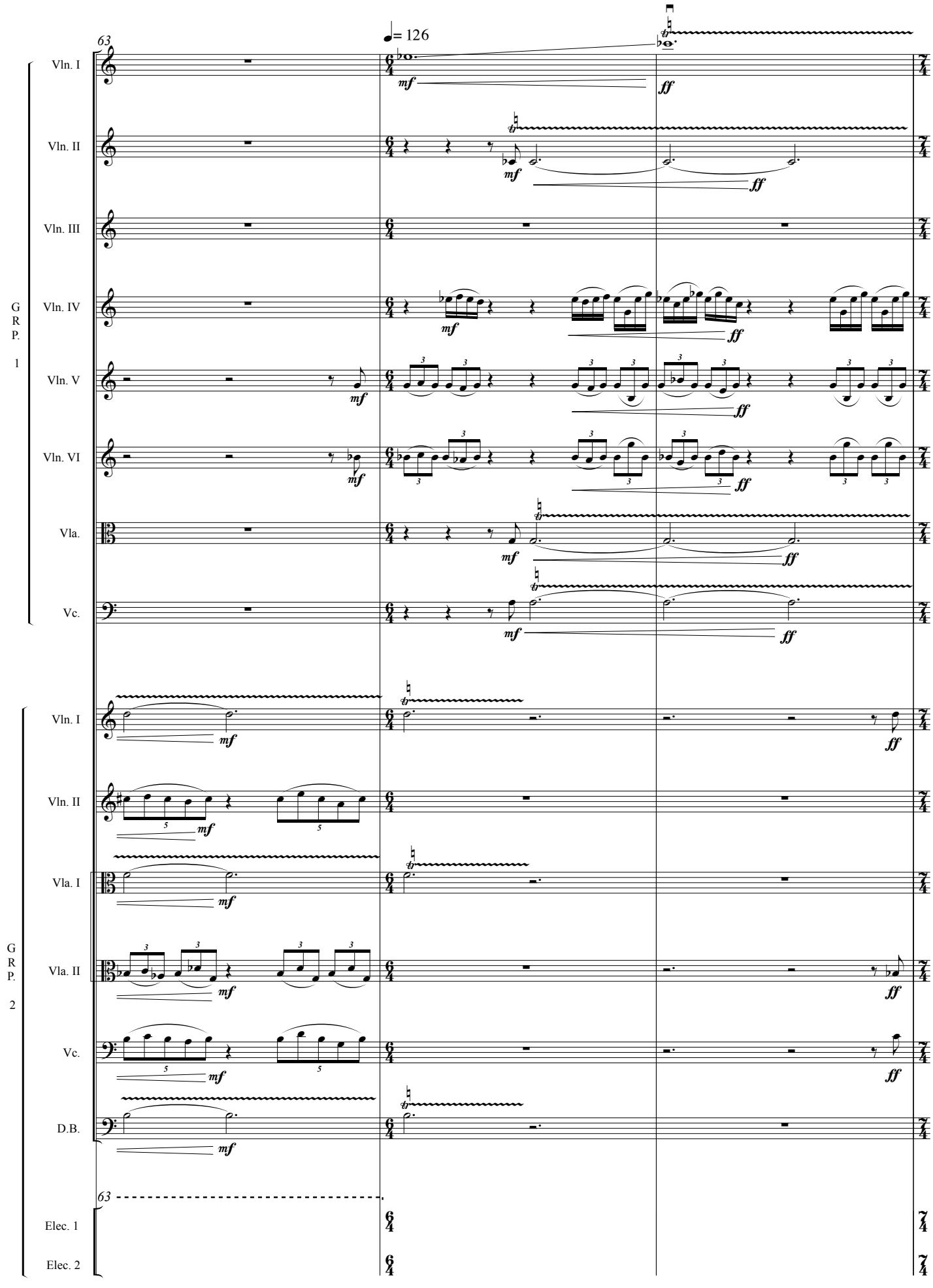

D
41
= 52
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
fp
mf
sul tasto
mp
pp
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
ord.
p
mf
41
Elec. 1
Elec. 2
Cue 4
Channels 1, 2 + 6
Delay 1 = 500ms
Feedback = 0
Rvb decay = 500ms
Transpose up = Maj, 6, 8ve, Maj. 9th
Spatio = 1+2
w/ occasional ping-pong
p

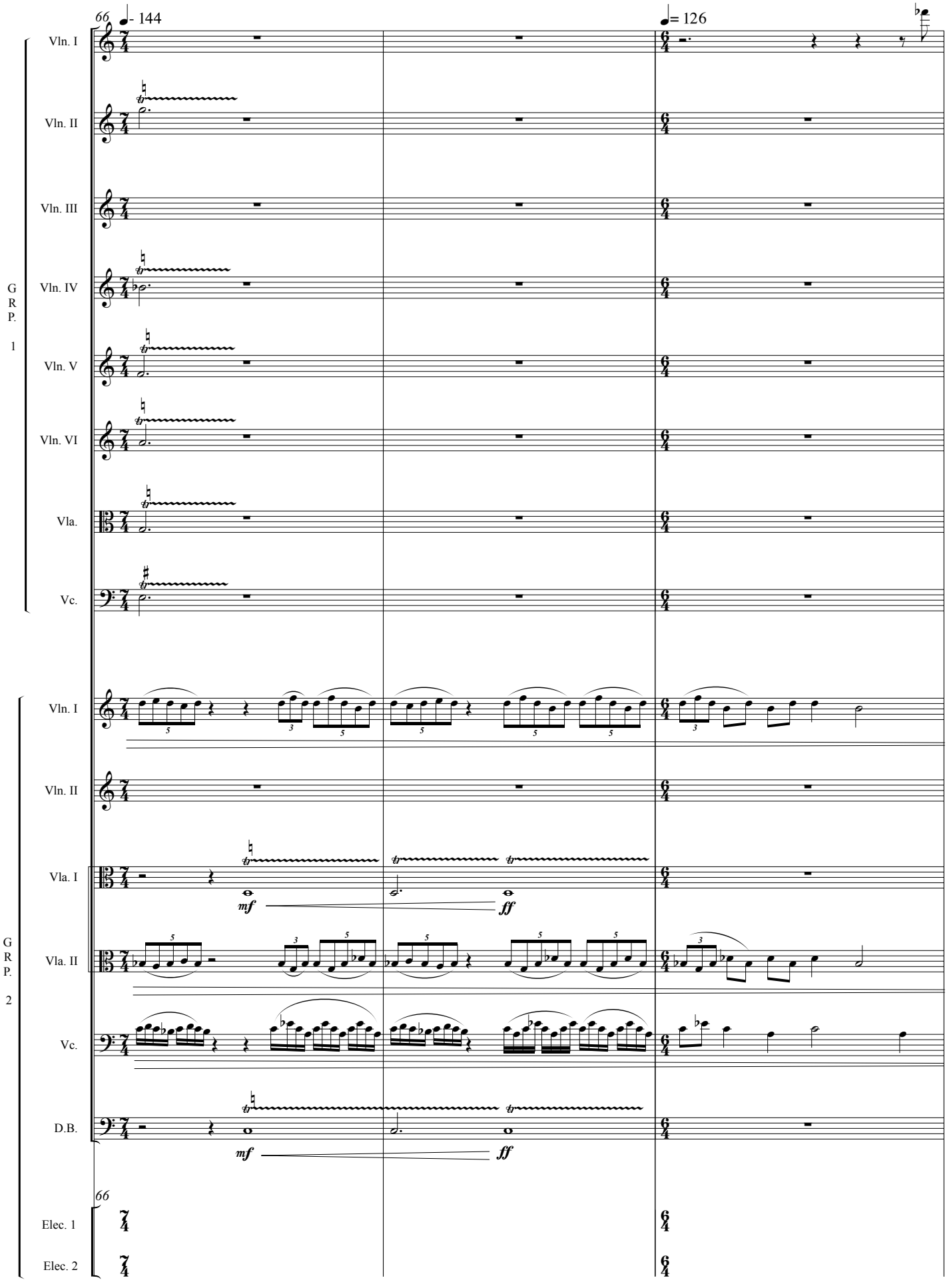

46
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul pont
ord.
p
f
ppp
mp
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
sul pont.
sul tasto
ord.
46
Elec. 1
Elec. 2
(elec. 2 perform Sfz-like effects on 1-2)
sfz
p

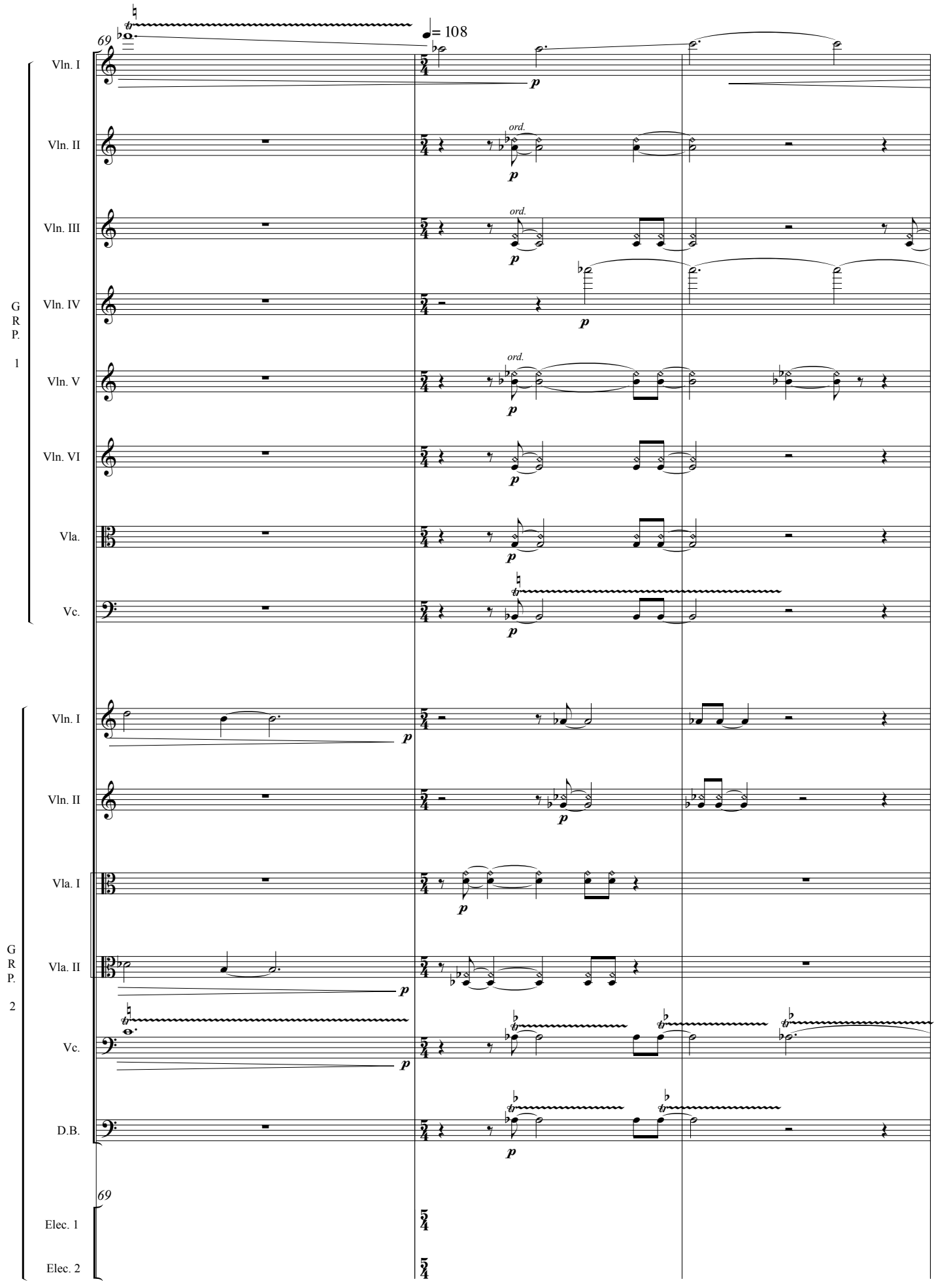

50
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul tasto
sul G
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
50
Cue 5
Channels 1-6
Delay 1 = 500ms, 2 = 1000ms
Rvb decay = 1000ms
Transpositions = Maj 2. above
Spatio = alt. ping-pong 3+4, 1+2
Elec. 1
Elec. 2

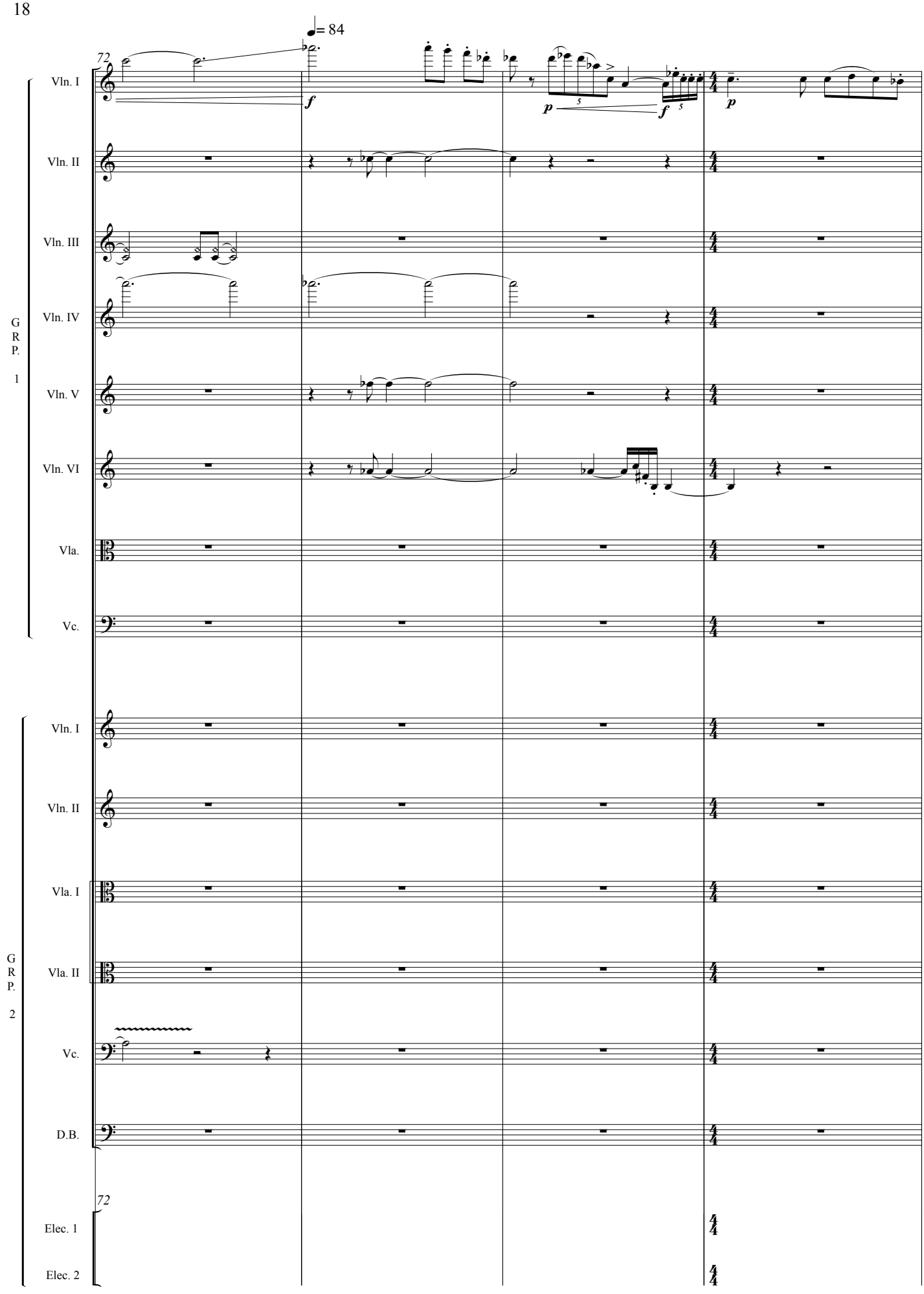

54
sul tasto
sul pont.
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
arco
sul pont.
ord.
Vla. I
Vla. II
D.B.
GRP. 2
Elec. 1
Elec. 2
1.
4.

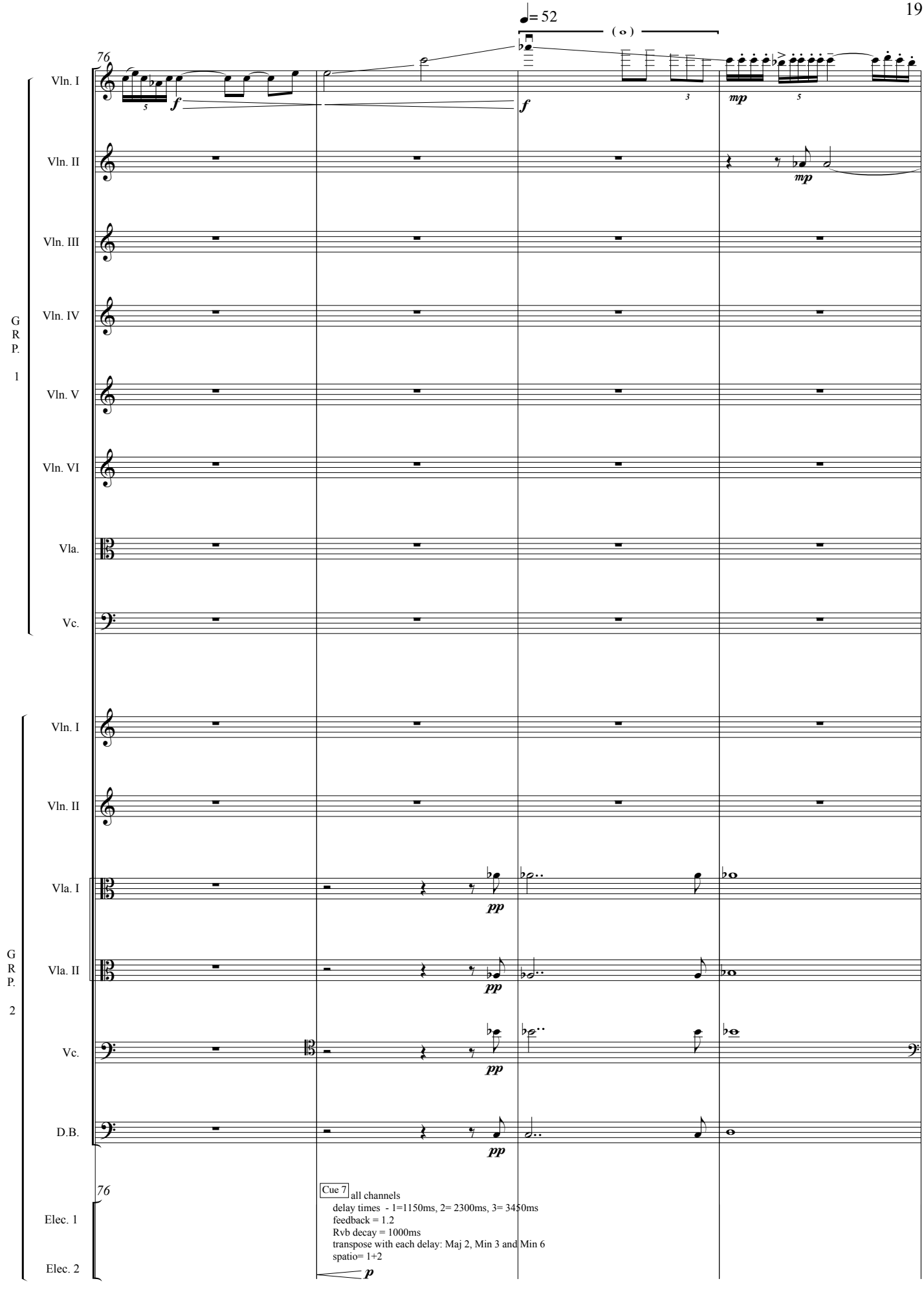

E
♩ = 84
♩ = 108
58
arco
ppp
p
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul pont.
f
Vla. I
Vla. II
D.B.
GRP. 2
pp
Elec. 1
Elec. 2
Cue 6
record bufB
channels 1-6

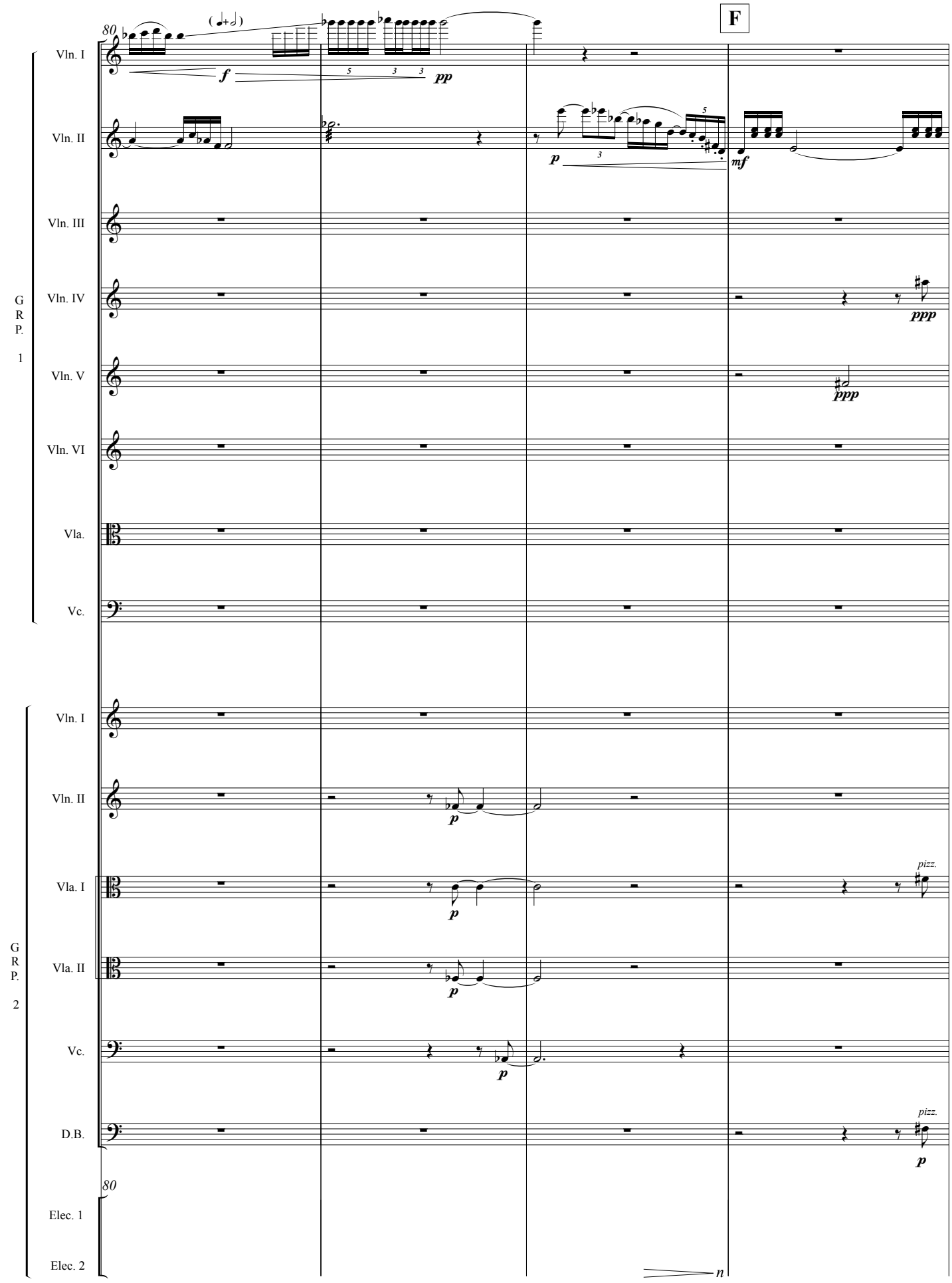

63
♩= 126
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
mf
ff
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
63
Elec. 1
Elec. 2

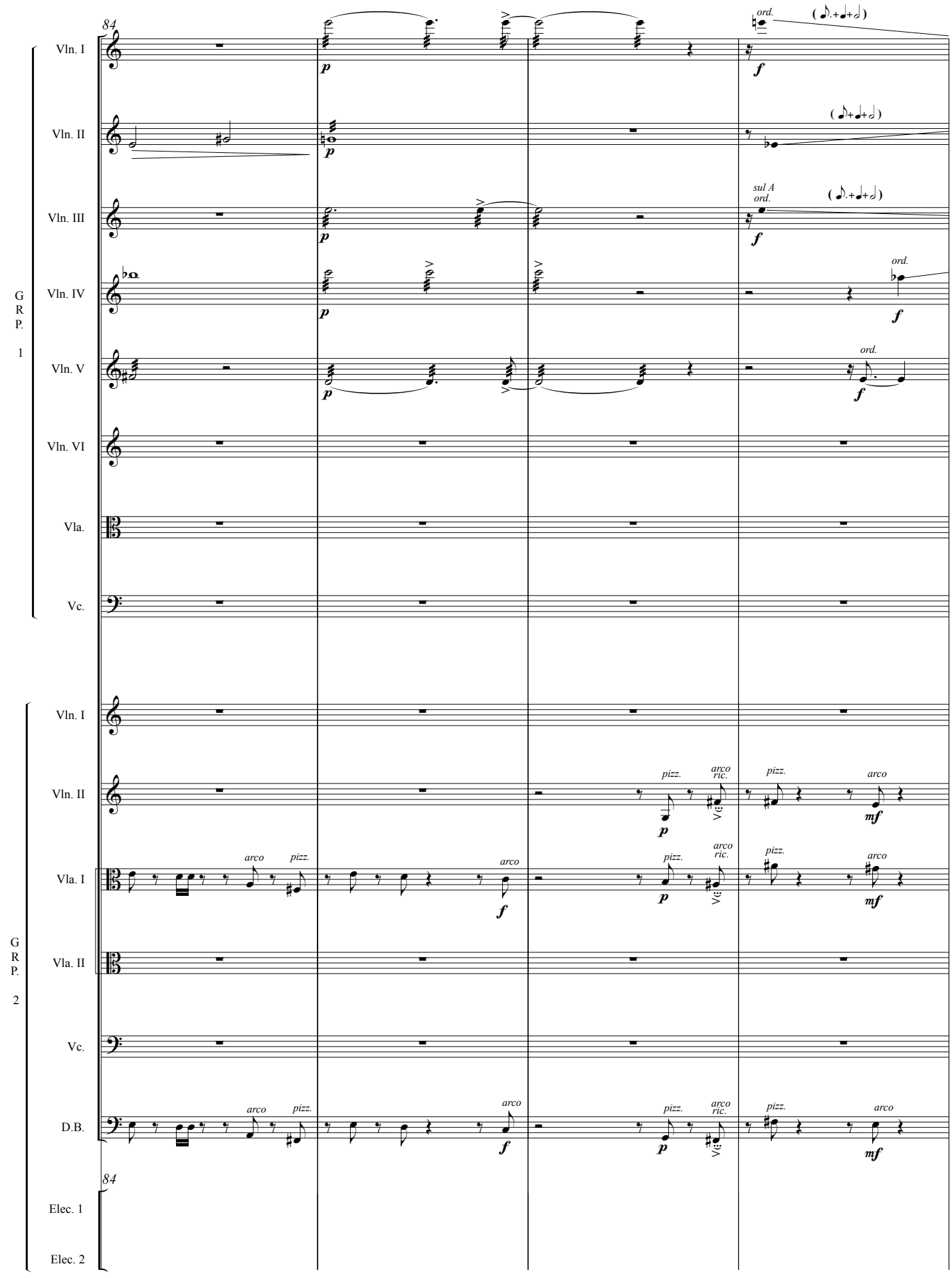

66
♩. - 144
♩= 126
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
mf
ff
66
Elec. 1
Elec. 2

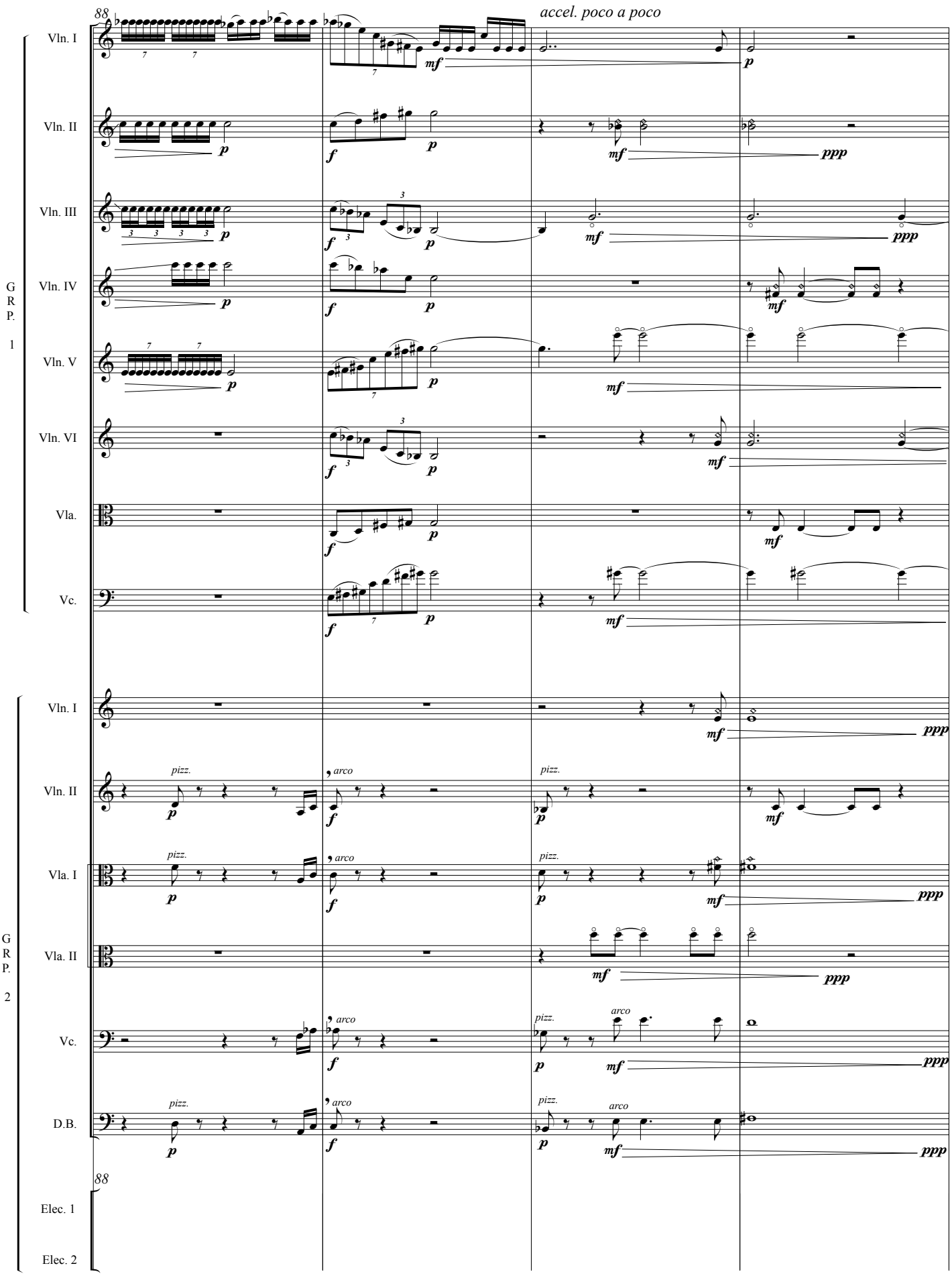

69
♩= 108
Vln. I
Vln. II
ord.
Vln. III
ord.
Vln. IV
Vln. V
ord.
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
69
Elec. 1
Elec. 2

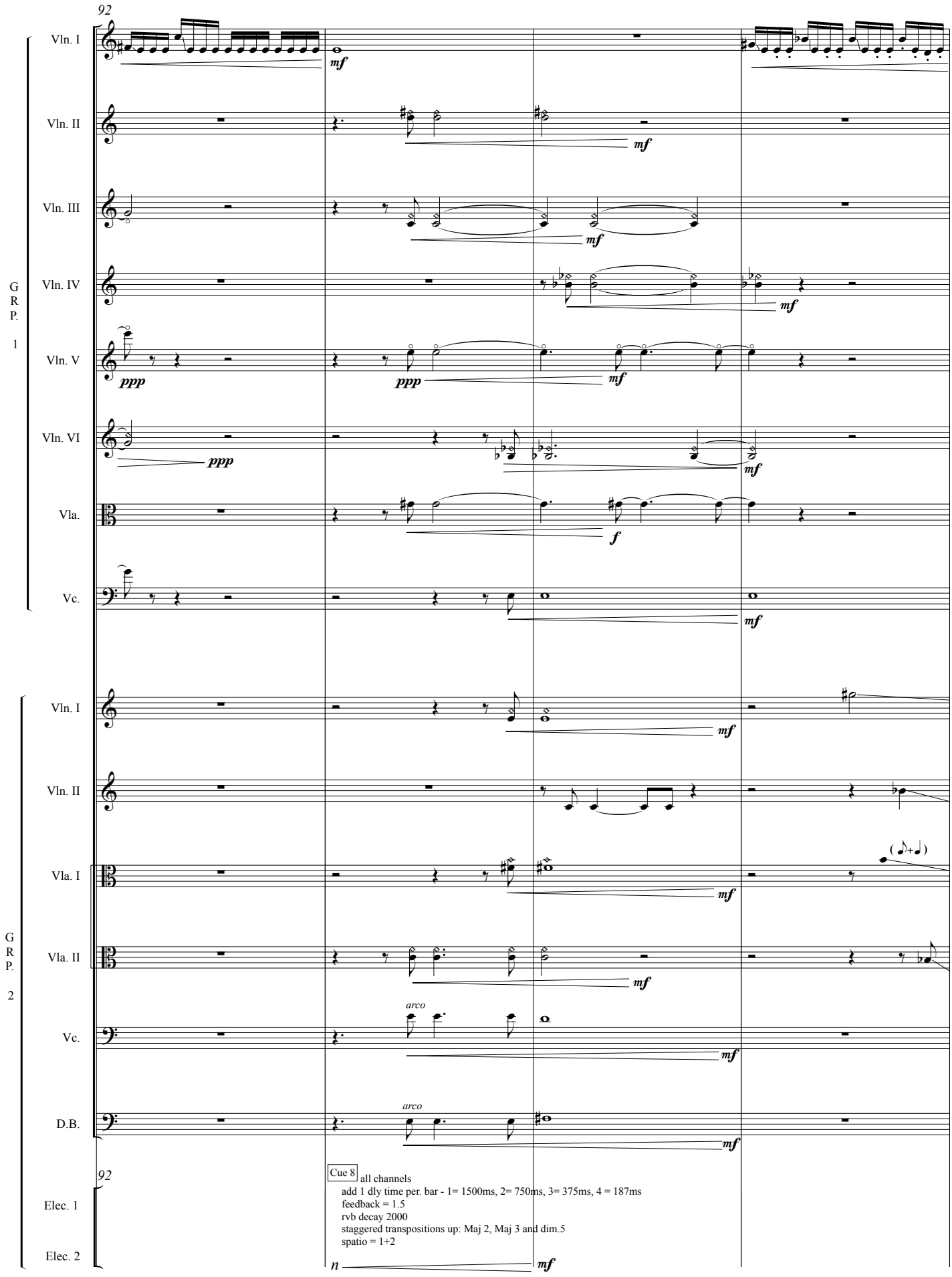

♩= 84
72
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
72
Elec. 1
Elec. 2

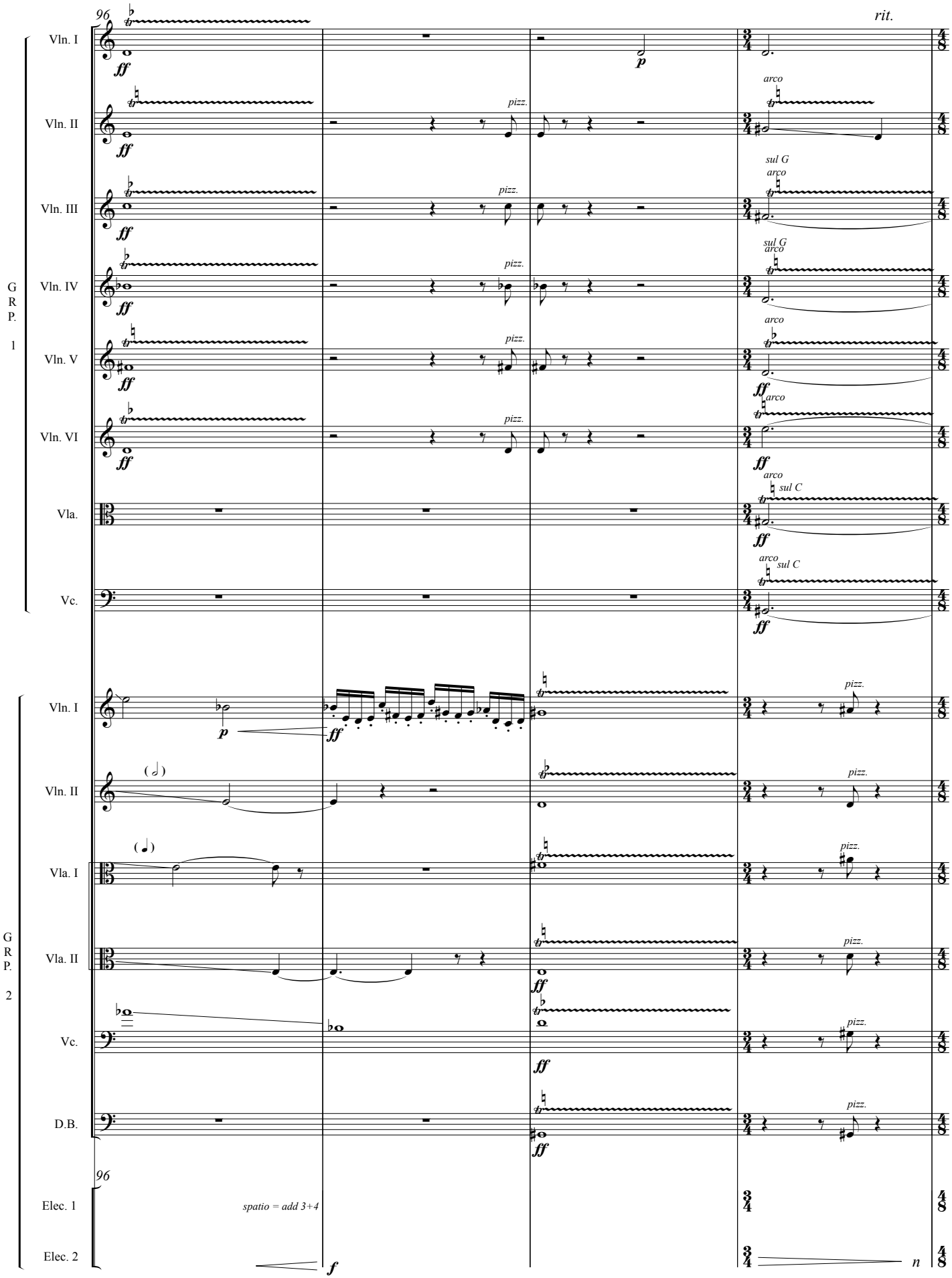

♩= 52
76
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
76
Elec. 1
Elec. 2
Cue 7 all channels
delay times - 1=1150ms, 2= 2300ms, 3= 3450ms
feedback = 1.2
Rvb decay = 1000ms
transpose with each delay: Maj 2, Min 3 and Min 6
spatio= 1+2


80
F
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
80
Elec. 1
Elec. 2
pizz.
pizz.


84
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
ord.
sul A
ord.
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
arco
pizz.
arco ric.
84
Elec. 1
Elec. 2


88
accel. poco a poco
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
pizz.
arco
88
Elec. 1
Elec. 2


92
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
mf
ppp
f
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
arco
92
Elec. 1
Elec. 2
Cue 8
all channels
add 1 dly time per. bar - 1= 1500ms, 2= 750ms, 3= 375ms, 4 = 187ms
feedback = 1.5
rvb decay 2000
staggered transpositions up: Maj 2, Maj 3 and dim.5
spatio = 1+2


96
rit.
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
pizz.
arco
sul G
sul C
ff
p
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
96
Elec. 1
Elec. 2
spatio = add 3+4
f
n

G

♩= 100
a tempo

100

GRP. 1

Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.

GRP. 2

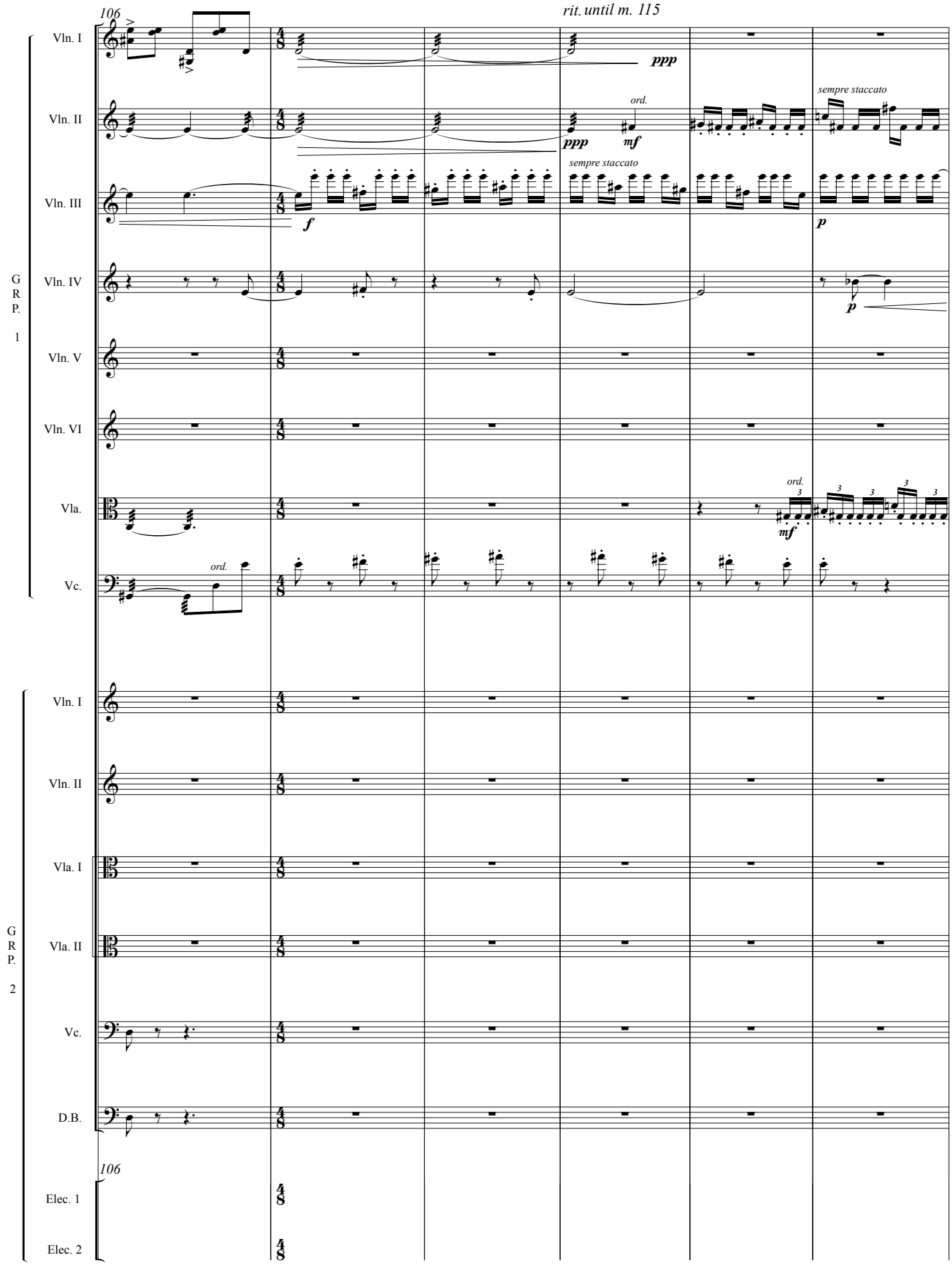
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.

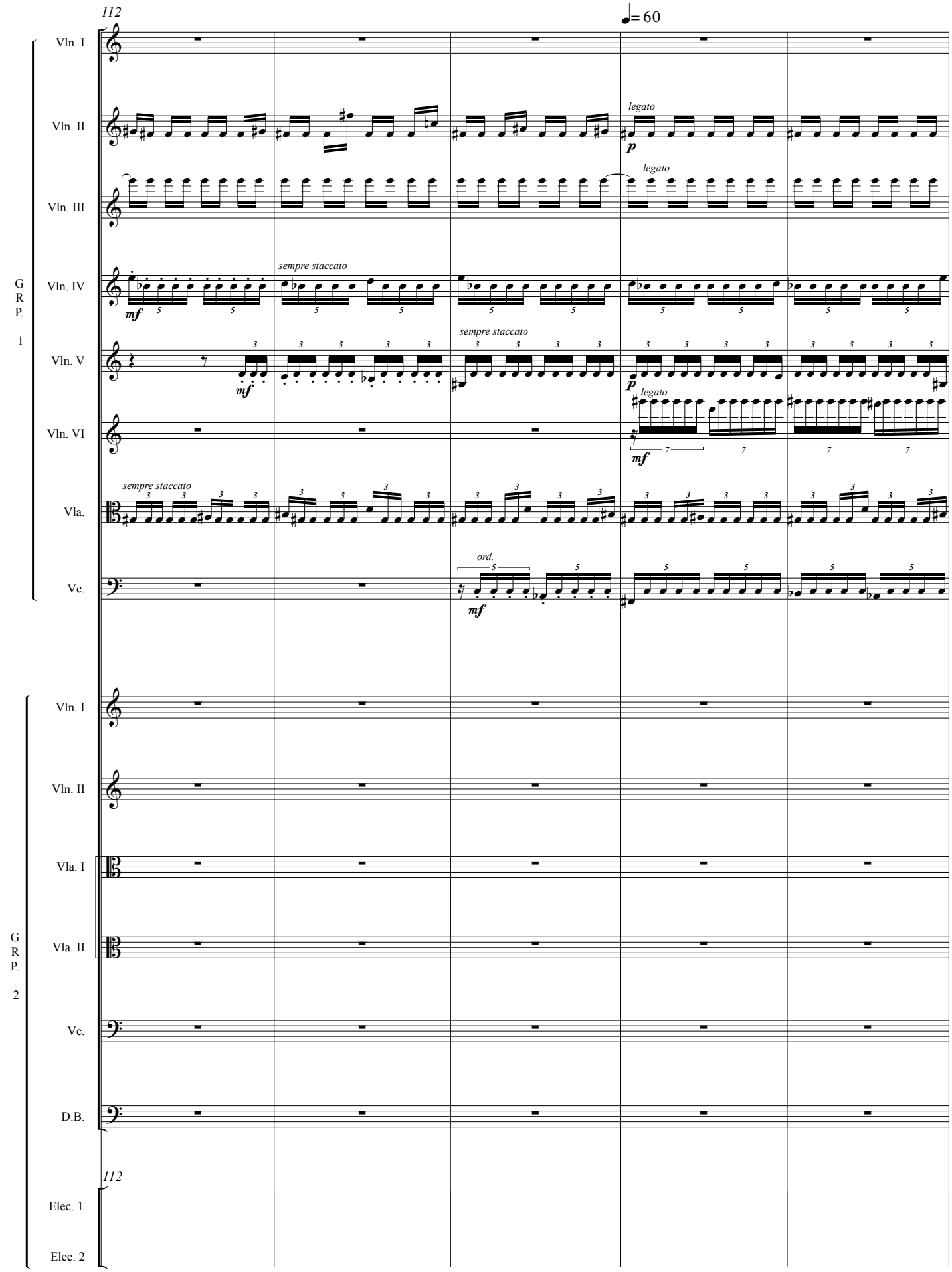
arco

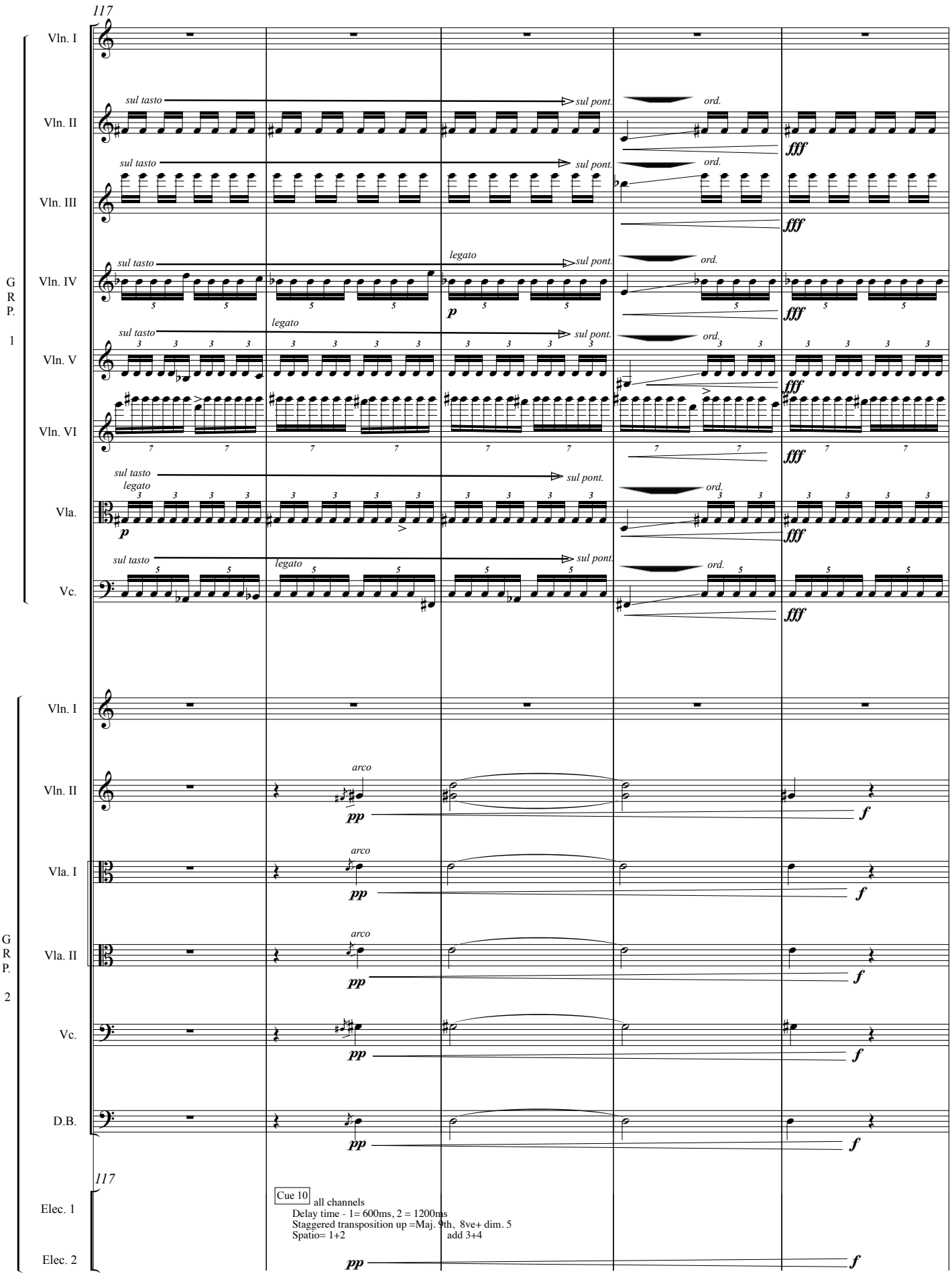
100

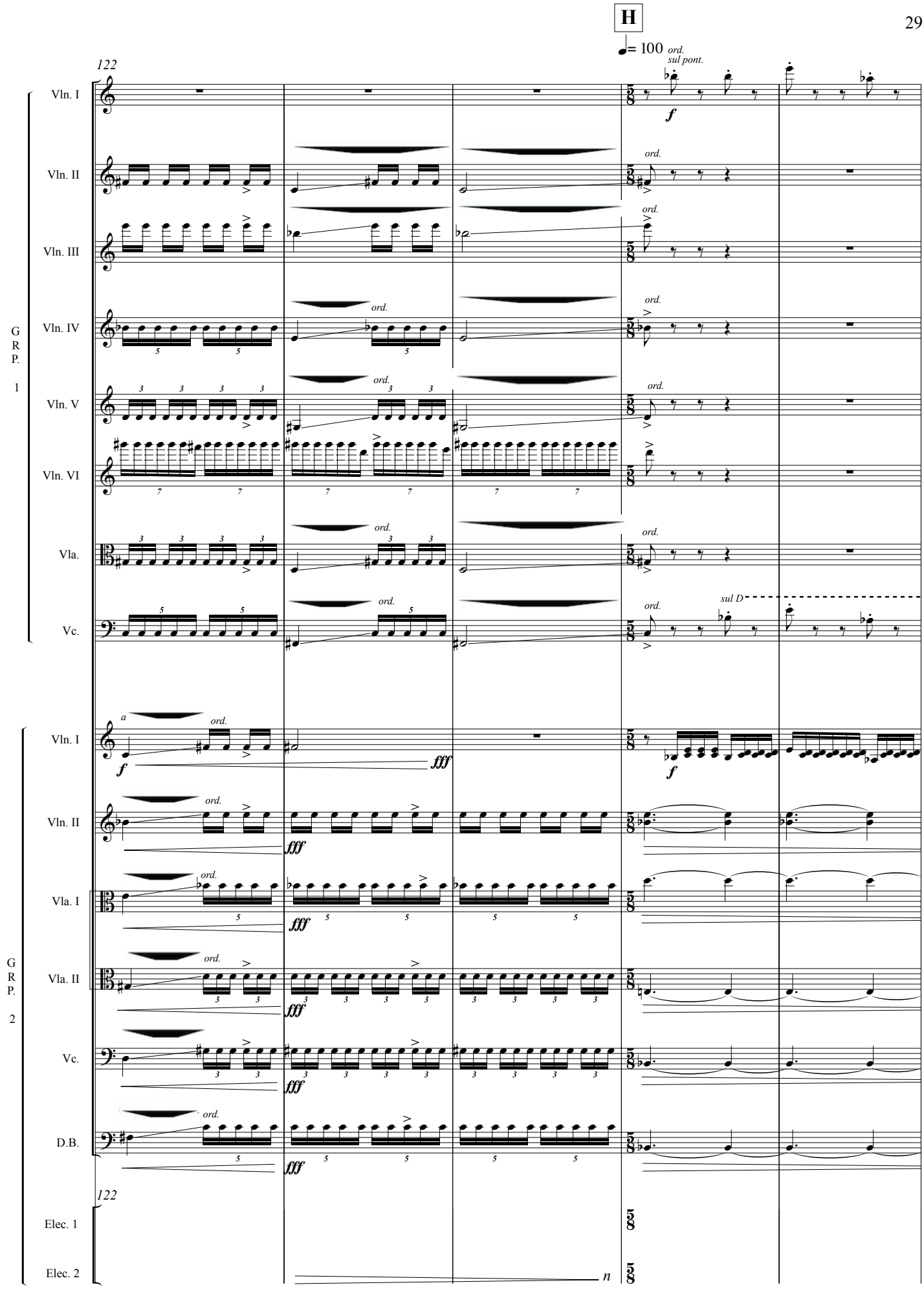
Elec. 1
Elec. 2

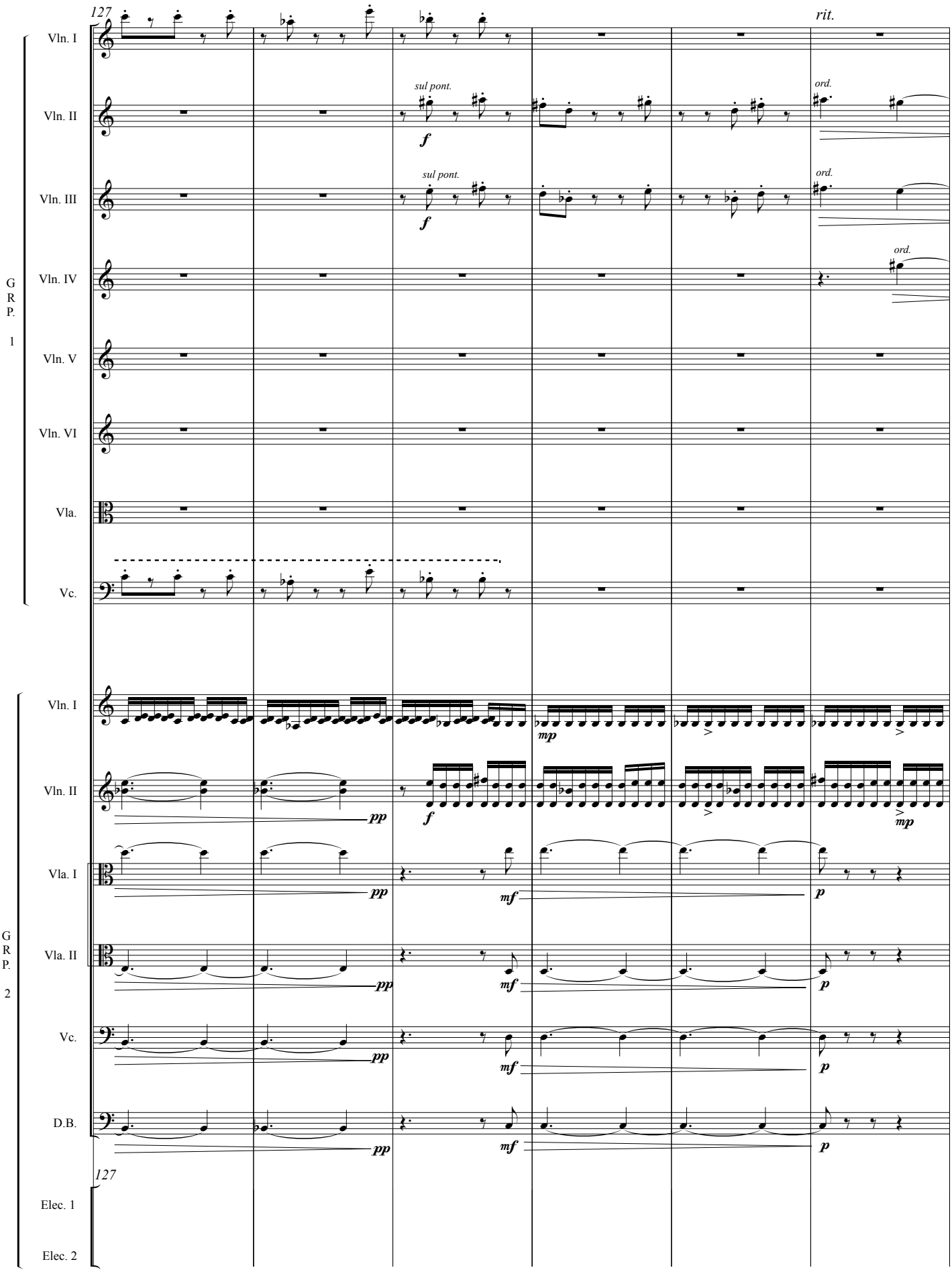
Cue 9
channels 5,6
Delay times - 1 = 50ms, 2 = 100 ms
Rvb decay = 5000
Transposisiton up : 8ve
spatio = 1+2

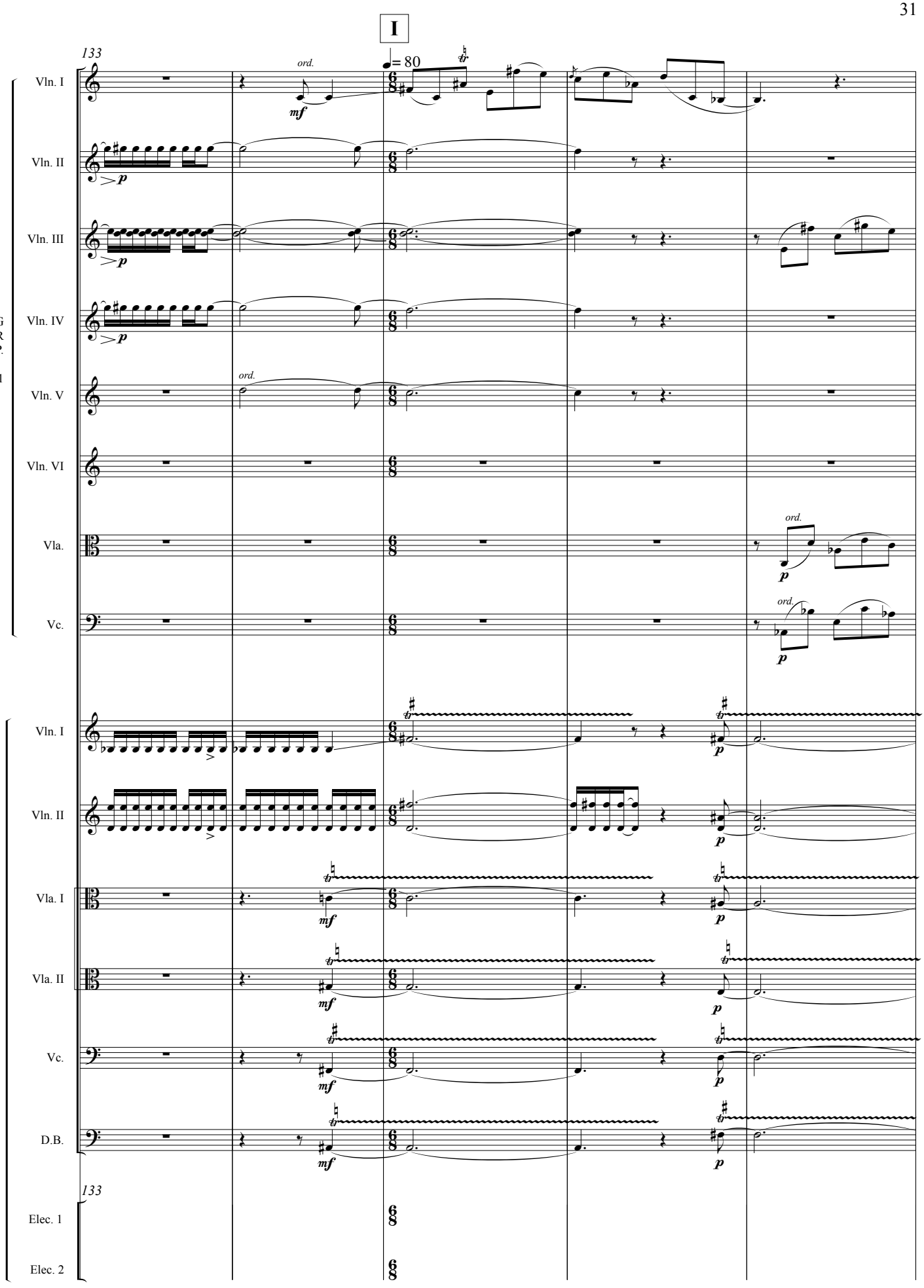

106
rit. until m. 115
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
ppp
ord.
mf
sempre staccato
f
p
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
106
Elec. 1
Elec. 2

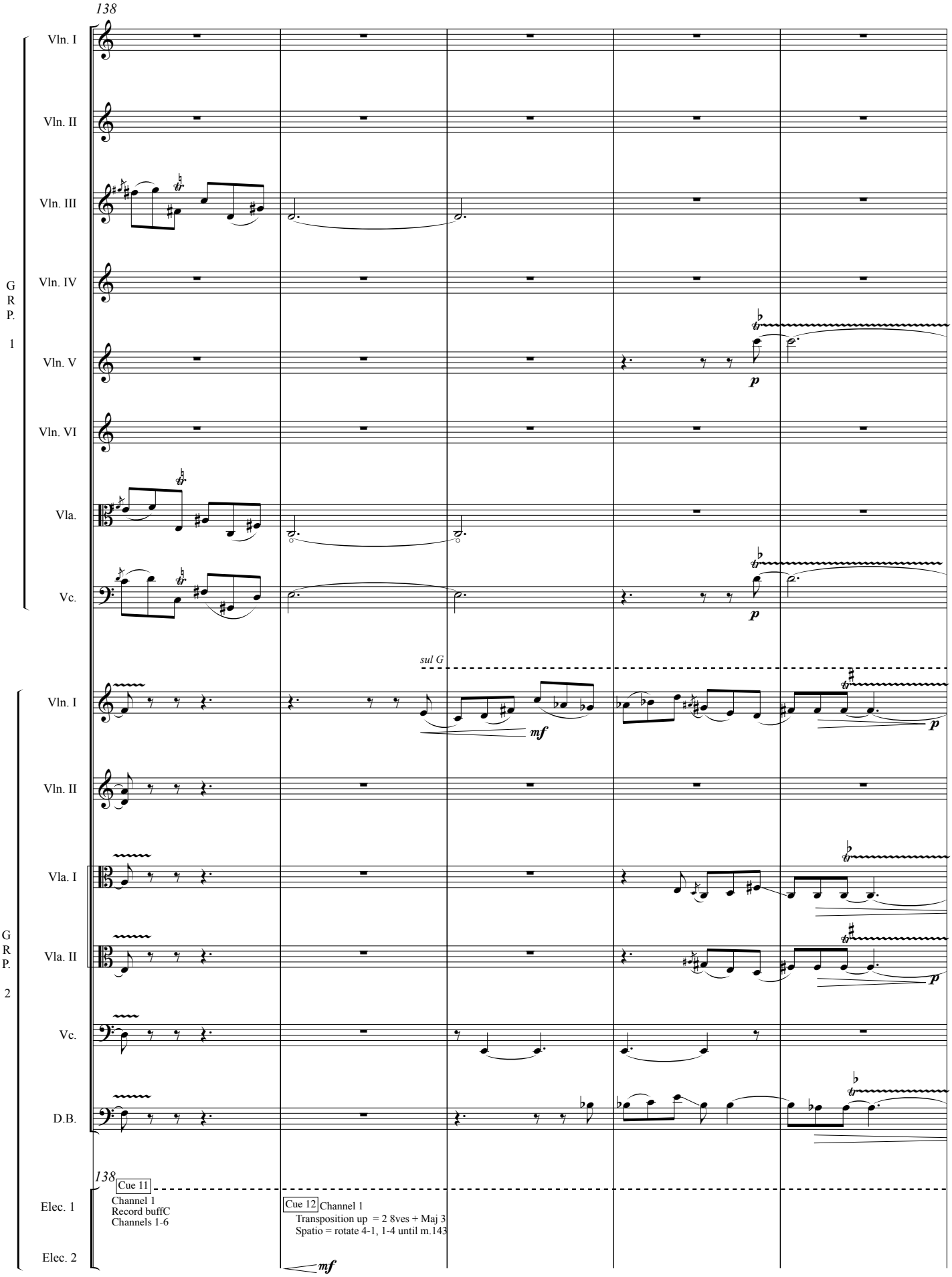

112
♩= 60
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
legato
sempre staccato
ord.
mf
p
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
112
Elec. 1
Elec. 2

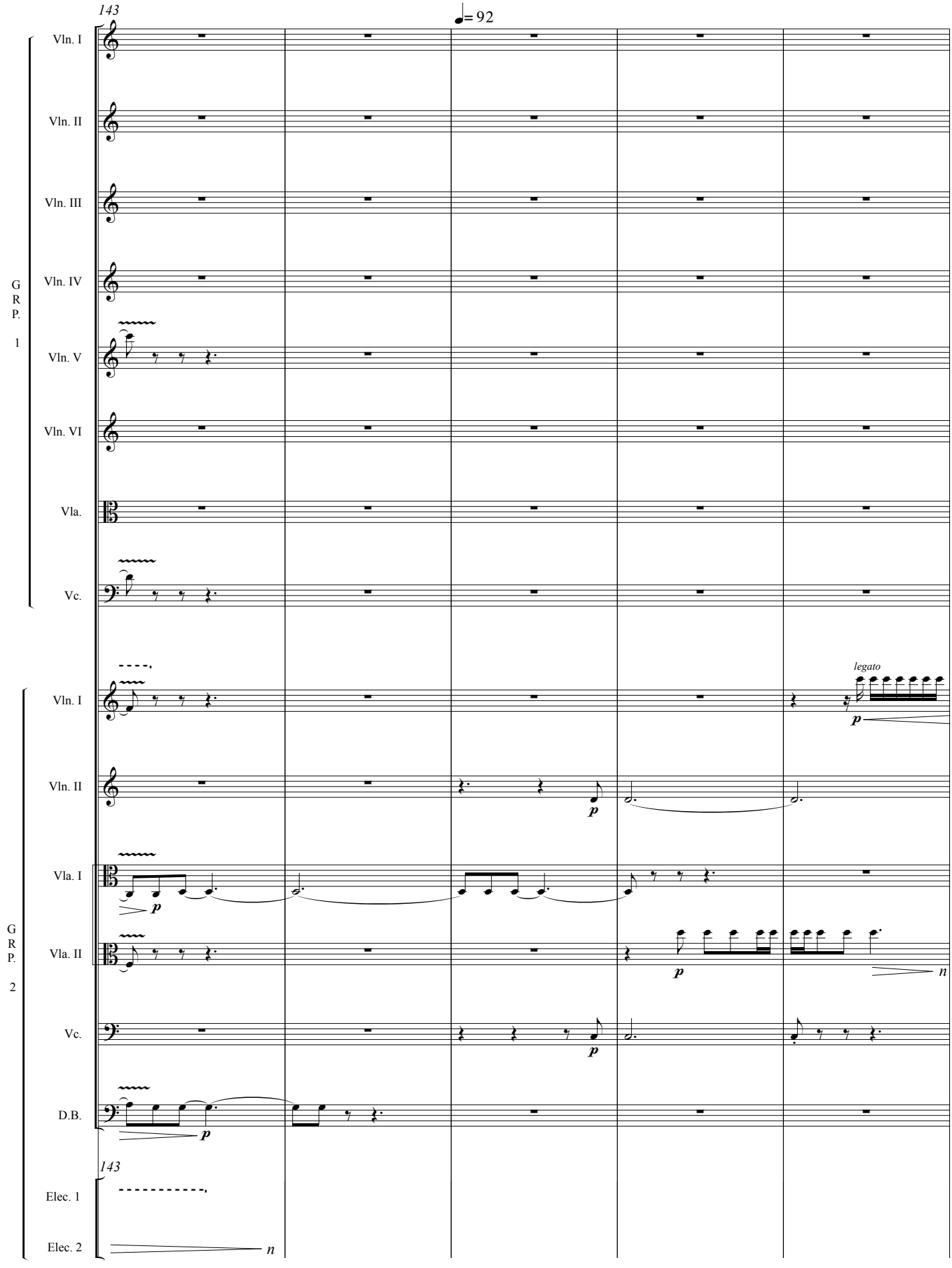

117
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul tasto
sul pont.
legato
ord.
fff
p
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
arco
pp
f
117
Elec. 1
Elec. 2
Cue 10
all channels
Delay time - 1= 600ms, 2 = 1200ms
Staggered transposition up =Maj. 9th, 8ve+ dim. 5
Spatio= 1+2
add 3+4

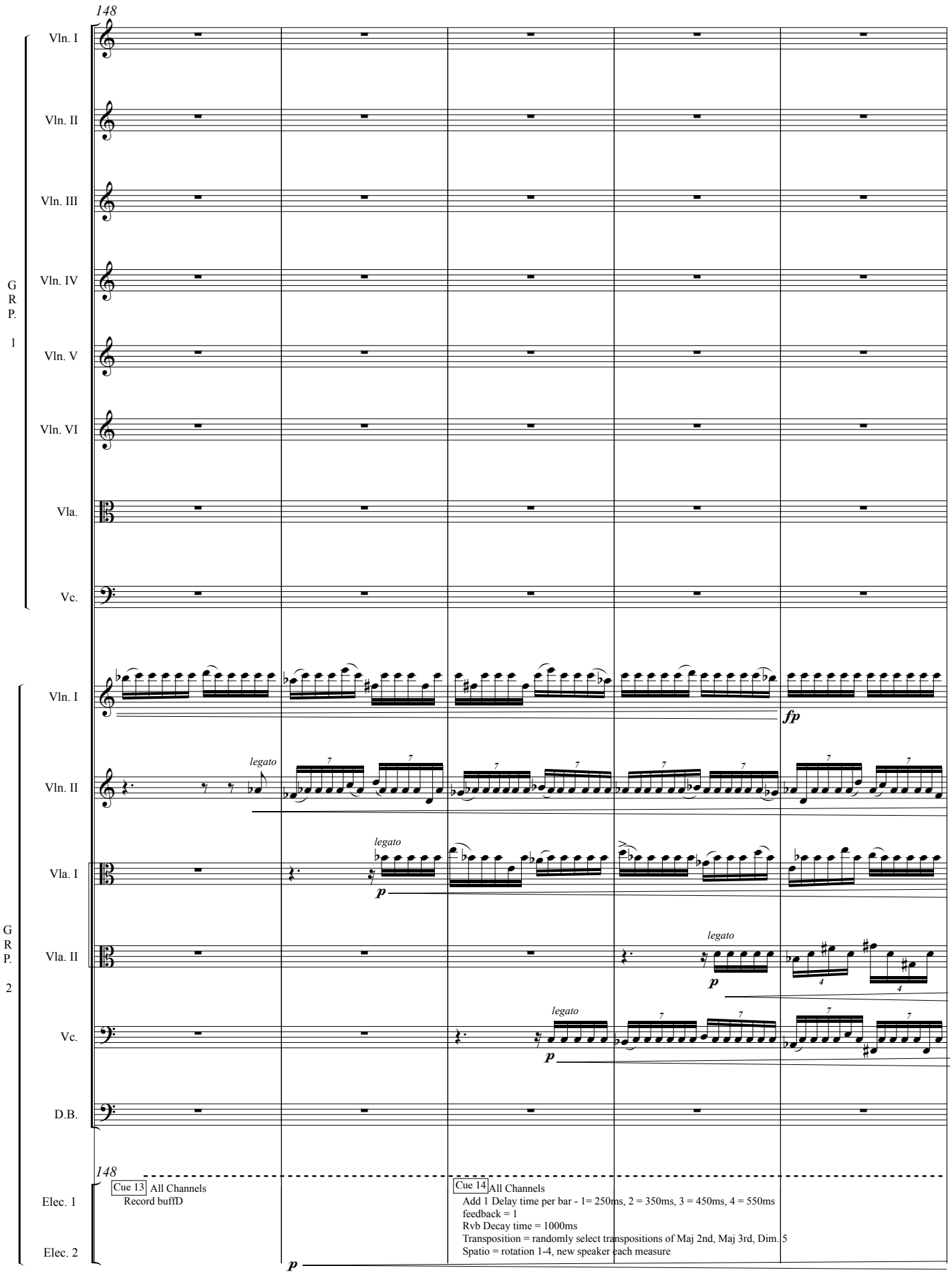

H
= 100
ord.
sul pont.
122
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul D
a
fff
Vla. I
Vla. II
D.B.
GRP. 2
Elec. 1
Elec. 2
n

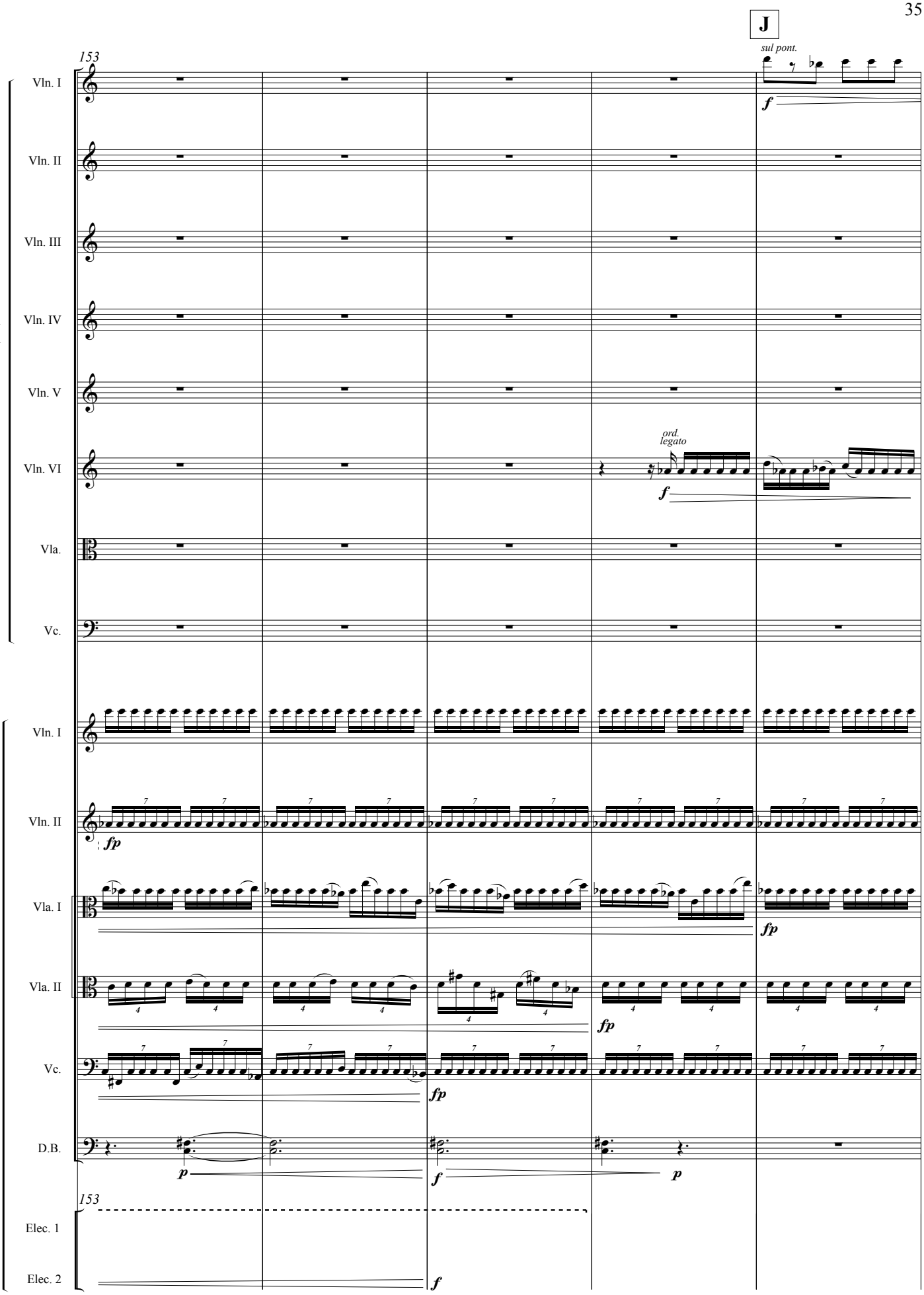

127
rit.
Vln. I
Vln. II
sul pont.
f
ord.
Vln. III
sul pont.
f
ord.
Vln. IV
ord.
GRP. 1
Vln. V
Vln. VI
Vla.
Vc.
Vln. I
mp
Vln. II
pp
f
mp
Vla. I
pp
mf
p
GRP. 2
Vla. II
pp
mf
p
Vc.
pp
mf
p
D.B.
pp
mf
p
127
Elec. 1
Elec. 2

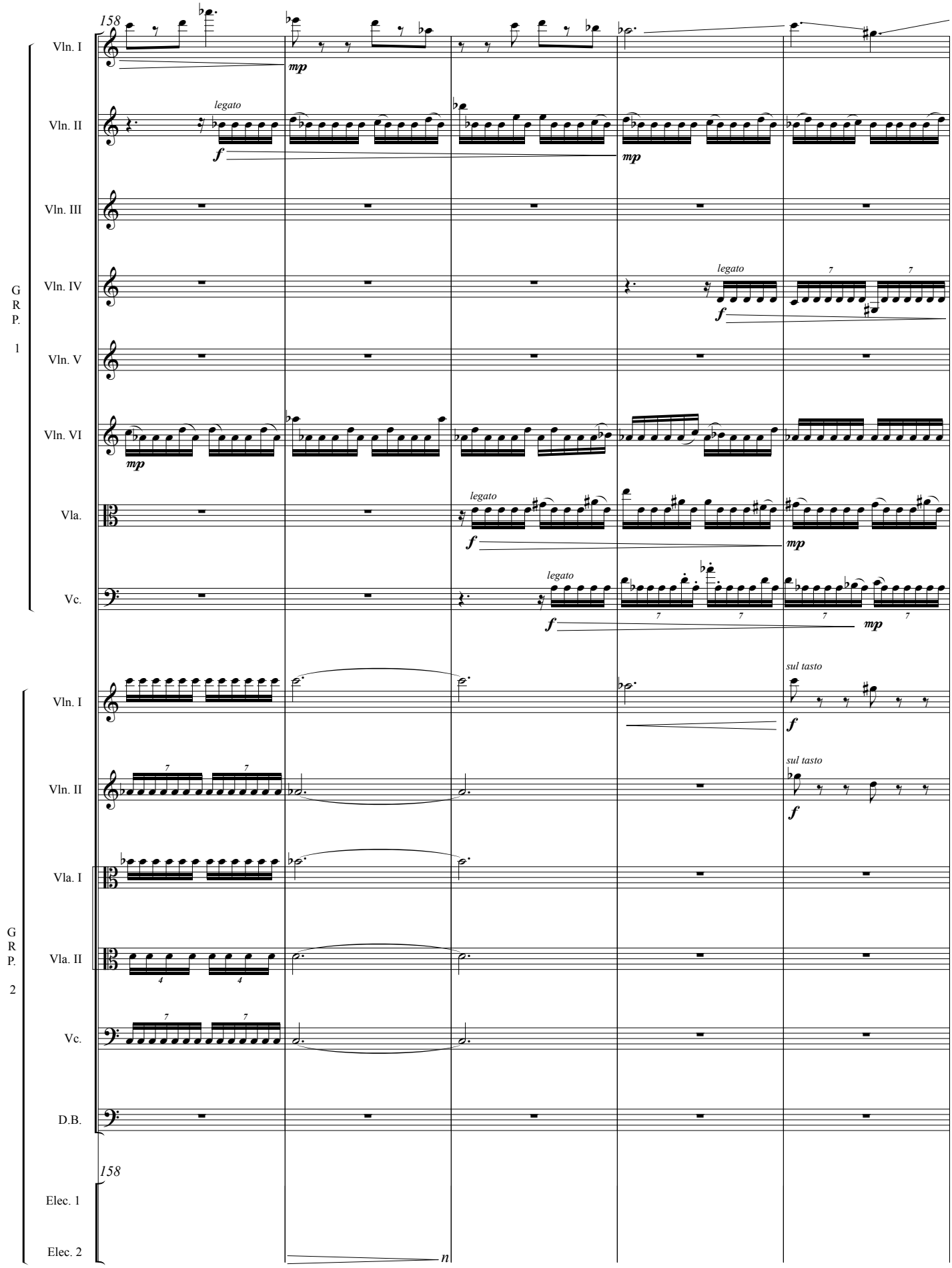

I
133
= 80
ord.
mf
p
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vla. I
Vla. II
D.B.
GRP. 2
Elec. 1
Elec. 2

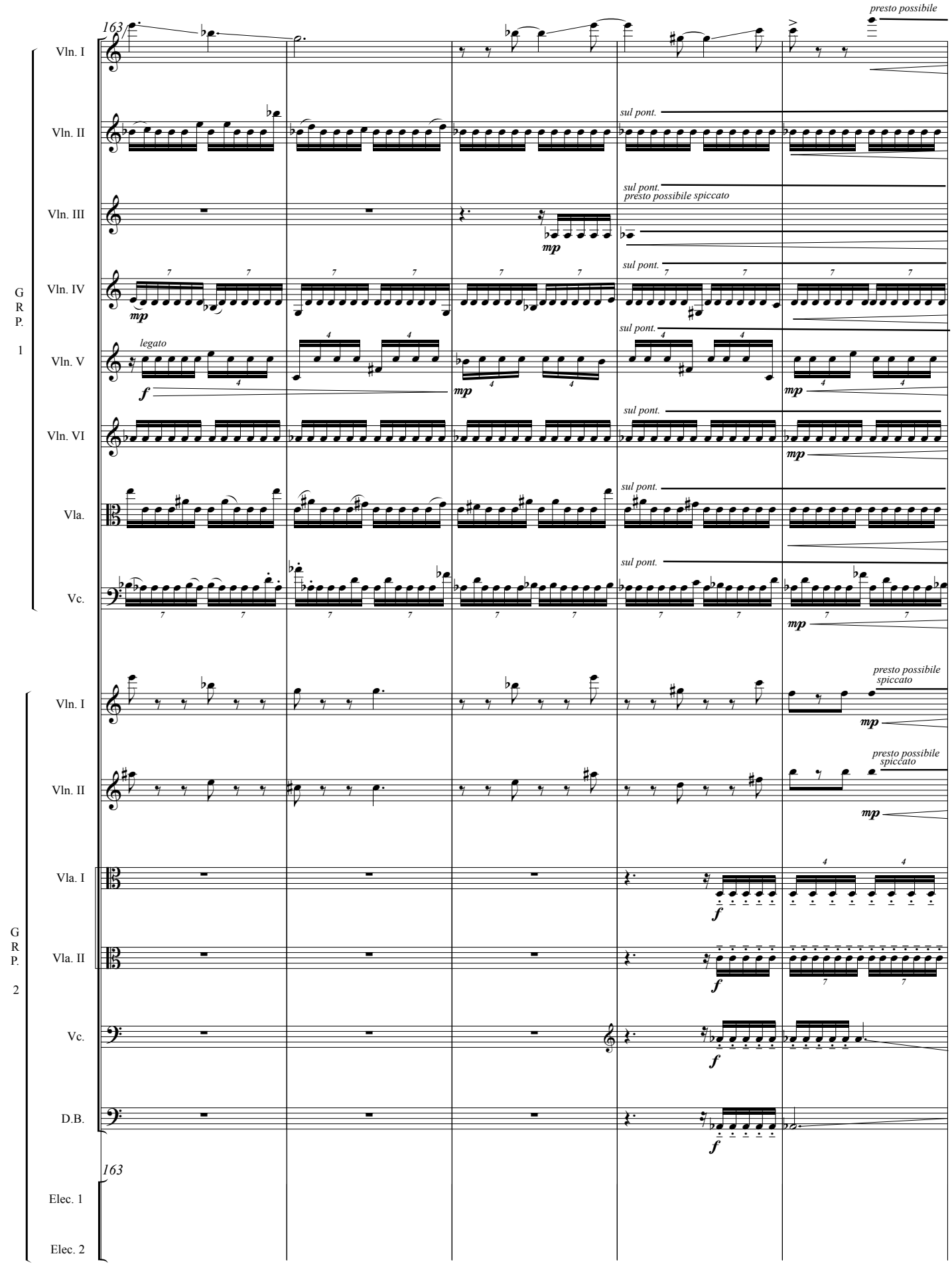

138
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul G
mf
p
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
138
Cue 11
Channel 1
Record buffC
Channels 1-6
Cue 12
Channel 1
Transposition up = 2 8ves + Maj 3
Spatio = rotate 4-1, 1-4 until m.143
Elec. 1
Elec. 2
mf

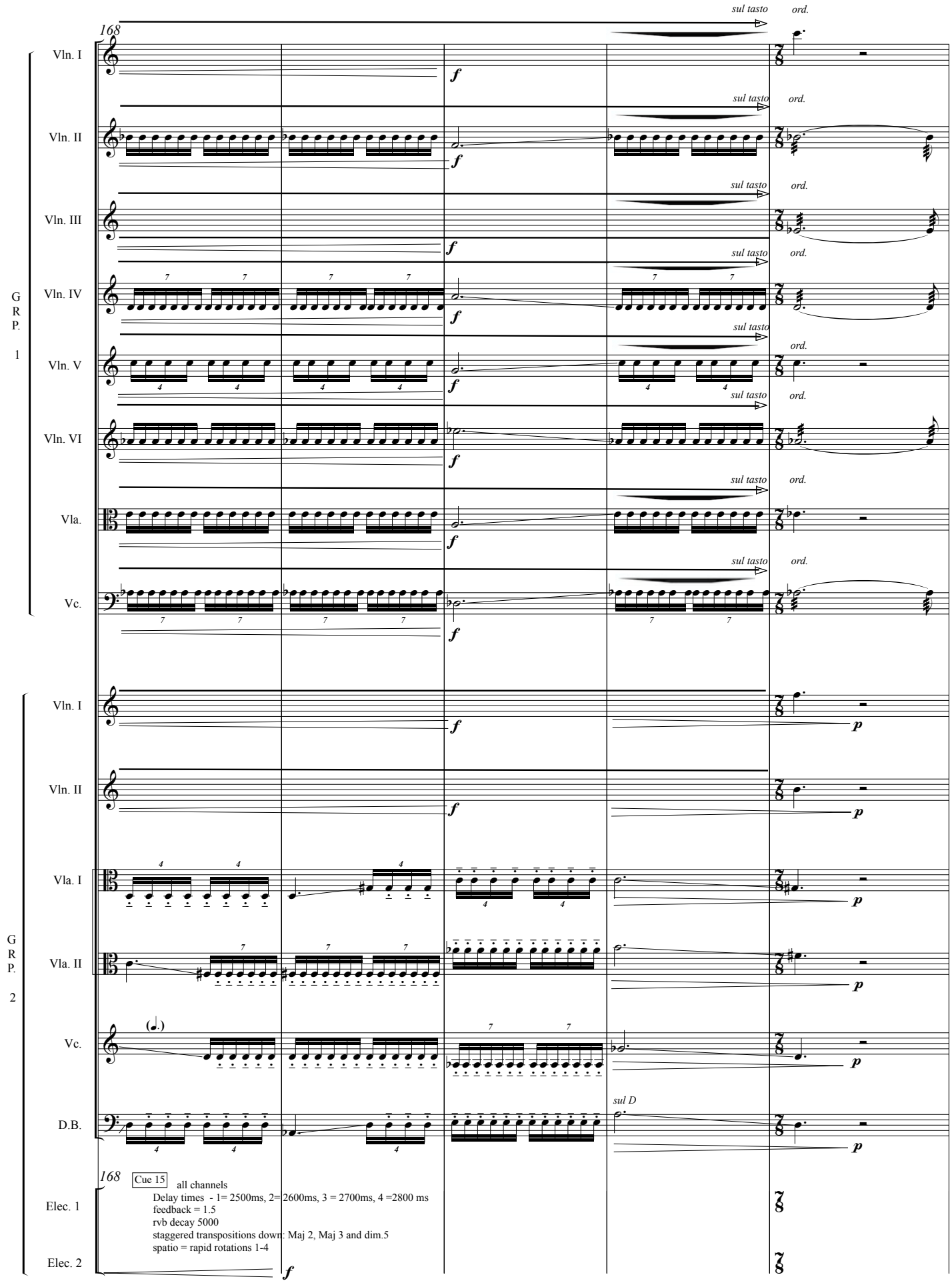

143
♩= 92
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
legato
p
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
143
Elec. 1
Elec. 2
n

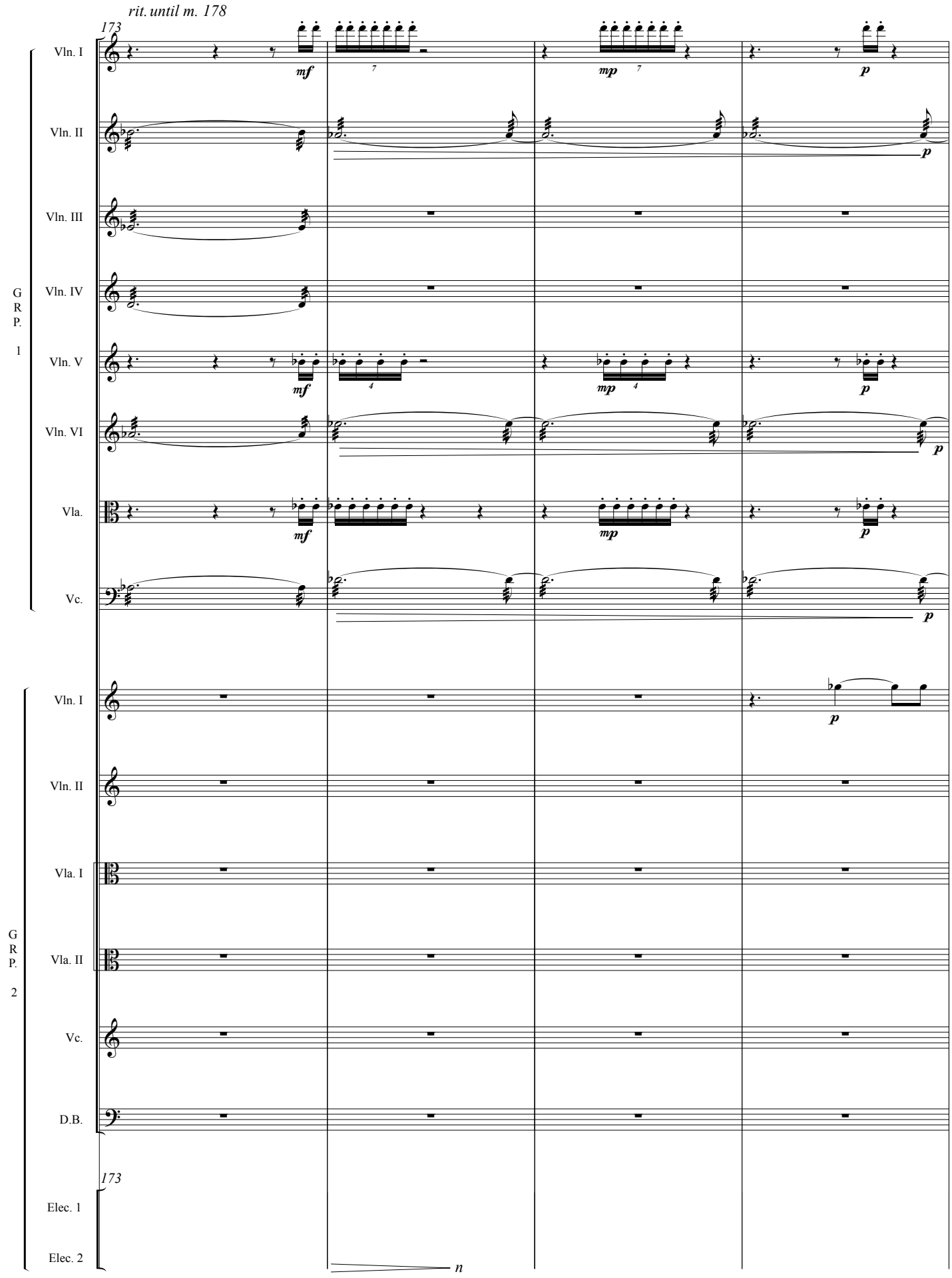

148
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
fp
Vln. II
legato
Vla. I
legato
p
Vla. II
legato
p
Vc.
legato
p
D.B.
GRP. 2
148
Elec. 1
Elec. 2
Cue 13 All Channels
Record buffD
Cue 14 All Channels
Add 1 Delay time per bar - 1= 250ms, 2 = 350ms, 3 = 450ms, 4 = 550ms
feedback = 1
Rvb Decay time = 1000ms
Transposition = randomly select transpositions of Maj 2nd, Maj 3rd, Dim. 5
Spatio = rotation 1-4, new speaker each measure
p

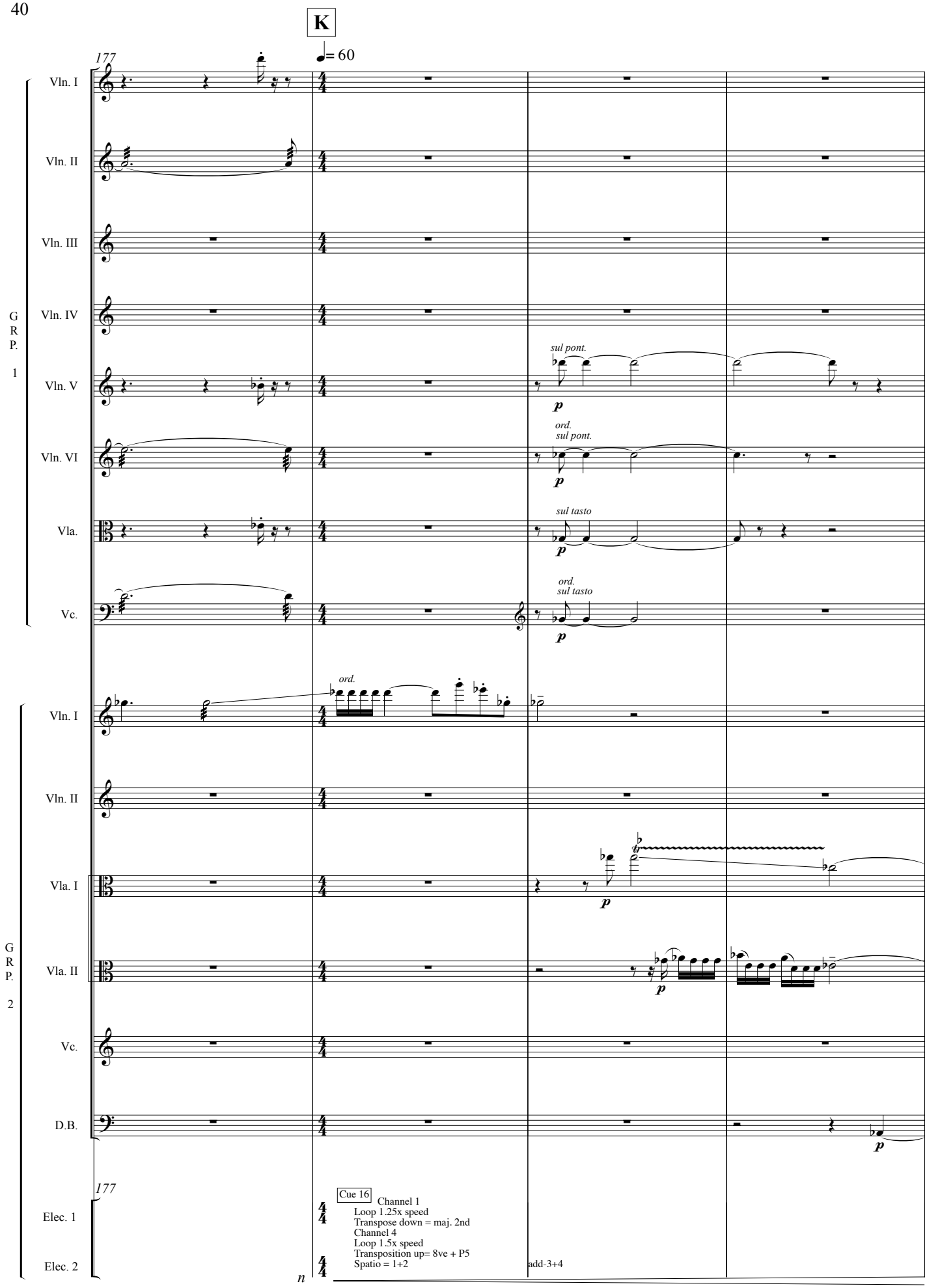

J
153
sul pont.
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
ord.
legato
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
153
Elec. 1
Elec. 2

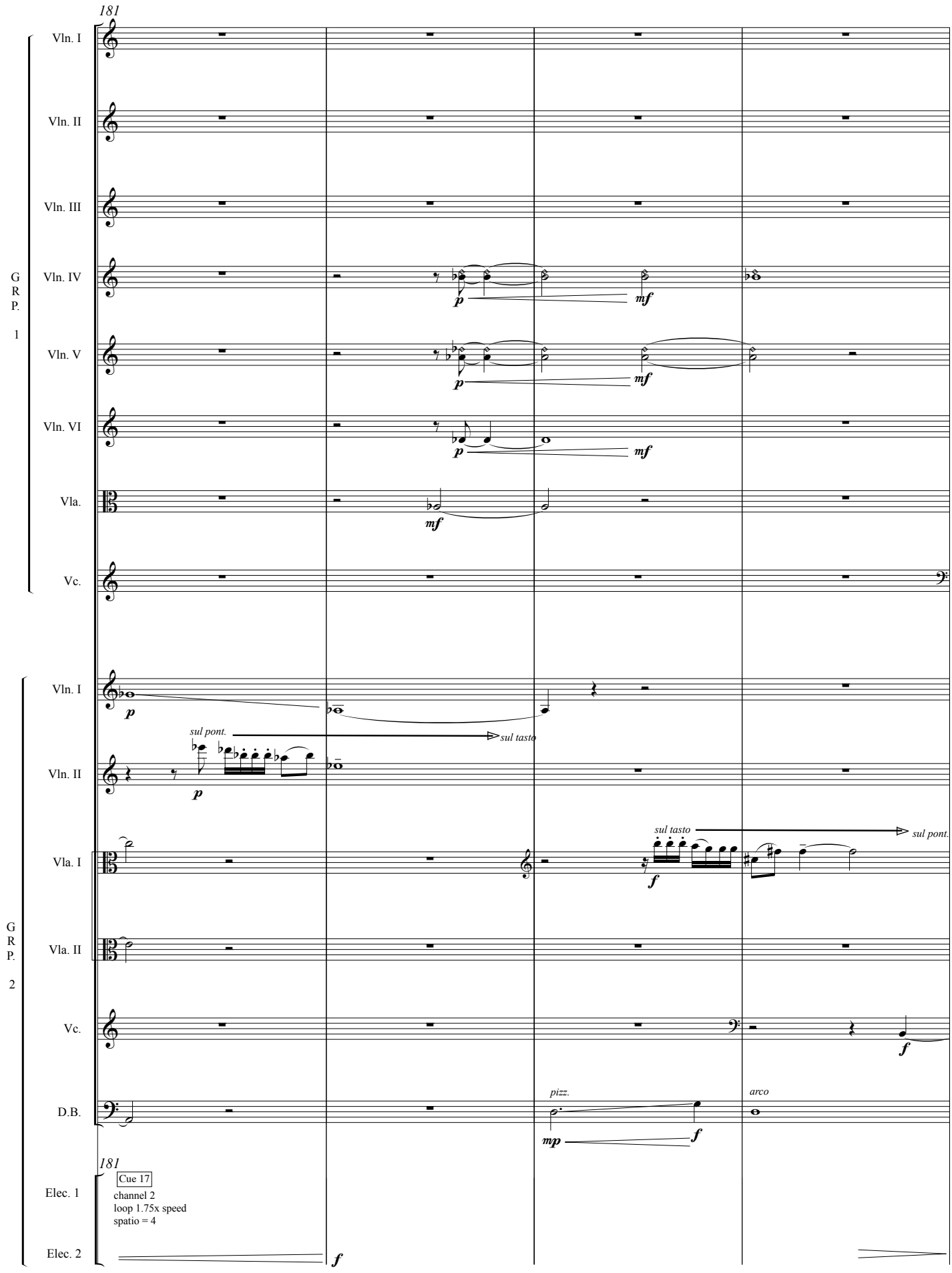

158
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
legato
mp
f
sul tasto
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
158
Elec. 1
Elec. 2
n

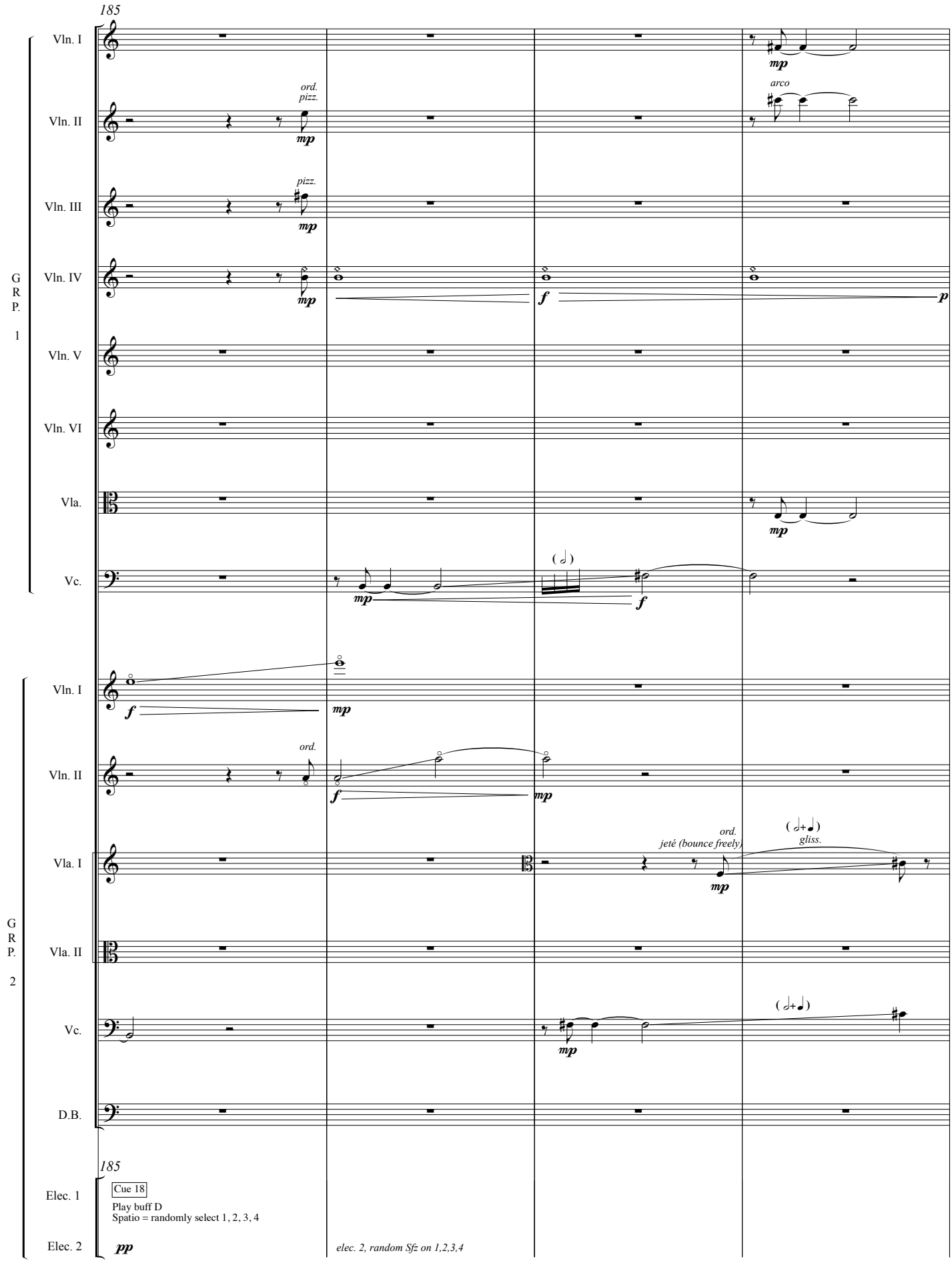

163
presto possibile
Vln. I
Vln. II
sul pont.
Vln. III
sul pont.
presto possibile spiccato
Vln. IV
sul pont.
GRP. 1
Vln. V
legato
sul pont.
Vln. VI
sul pont.
Vla.
sul pont.
Vc.
sul pont.
presto possibile spiccato
Vln. I
presto possibile spiccato
Vln. II
Vla. I
Vla. II
GRP. 2
Vc.
D.B.
163
Elec. 1
Elec. 2

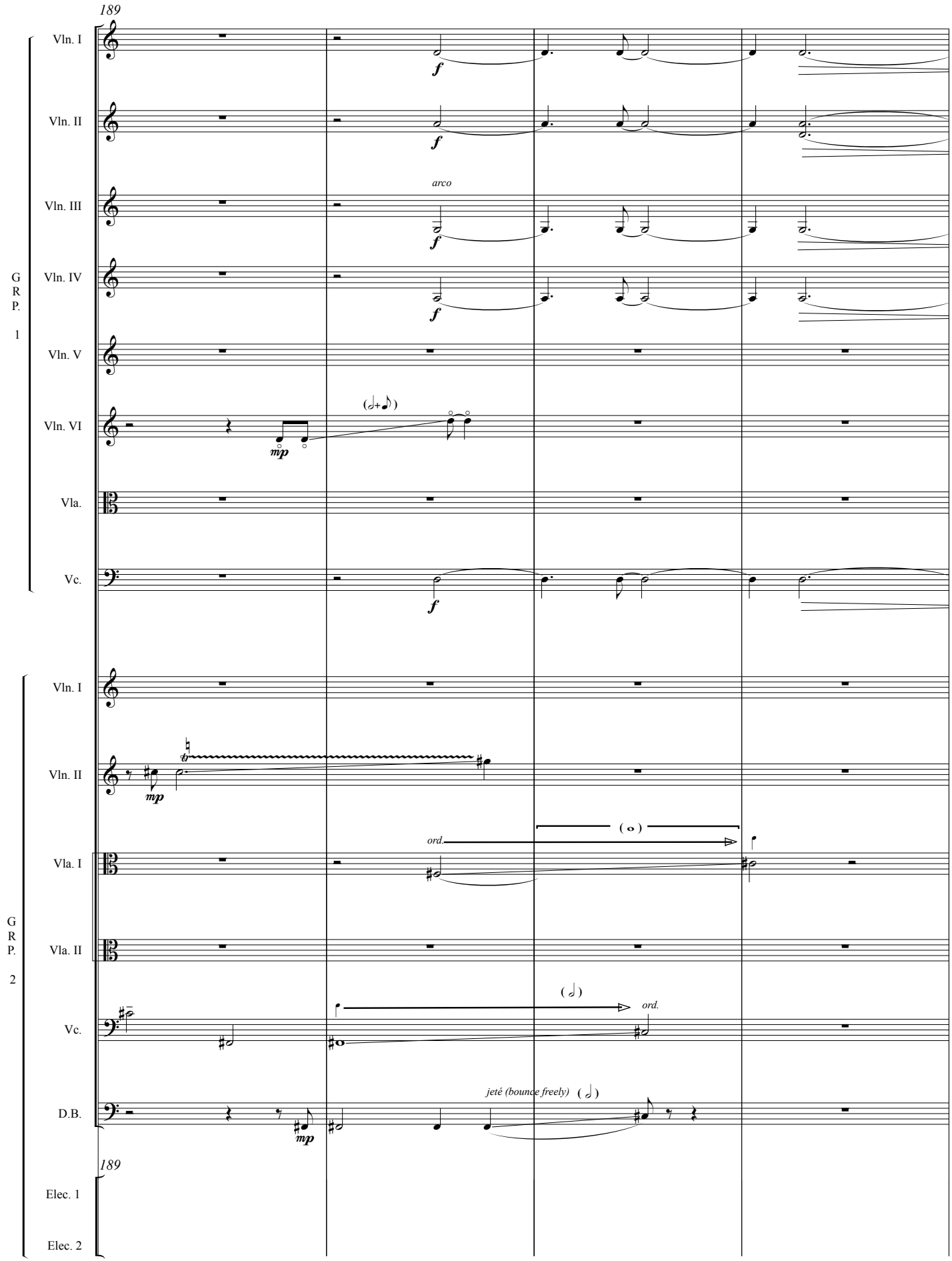

168
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul tasto
ord.
f
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
sul D
p
168
Cue 15
all channels
Delay times - 1= 2500ms, 2= 2600ms, 3 = 2700ms, 4 =2800 ms
feedback = 1.5
rvb decay 5000
staggered transpositions down: Maj 2, Maj 3 and dim.5
spatio = rapid rotations 1-4
Elec. 1
Elec. 2

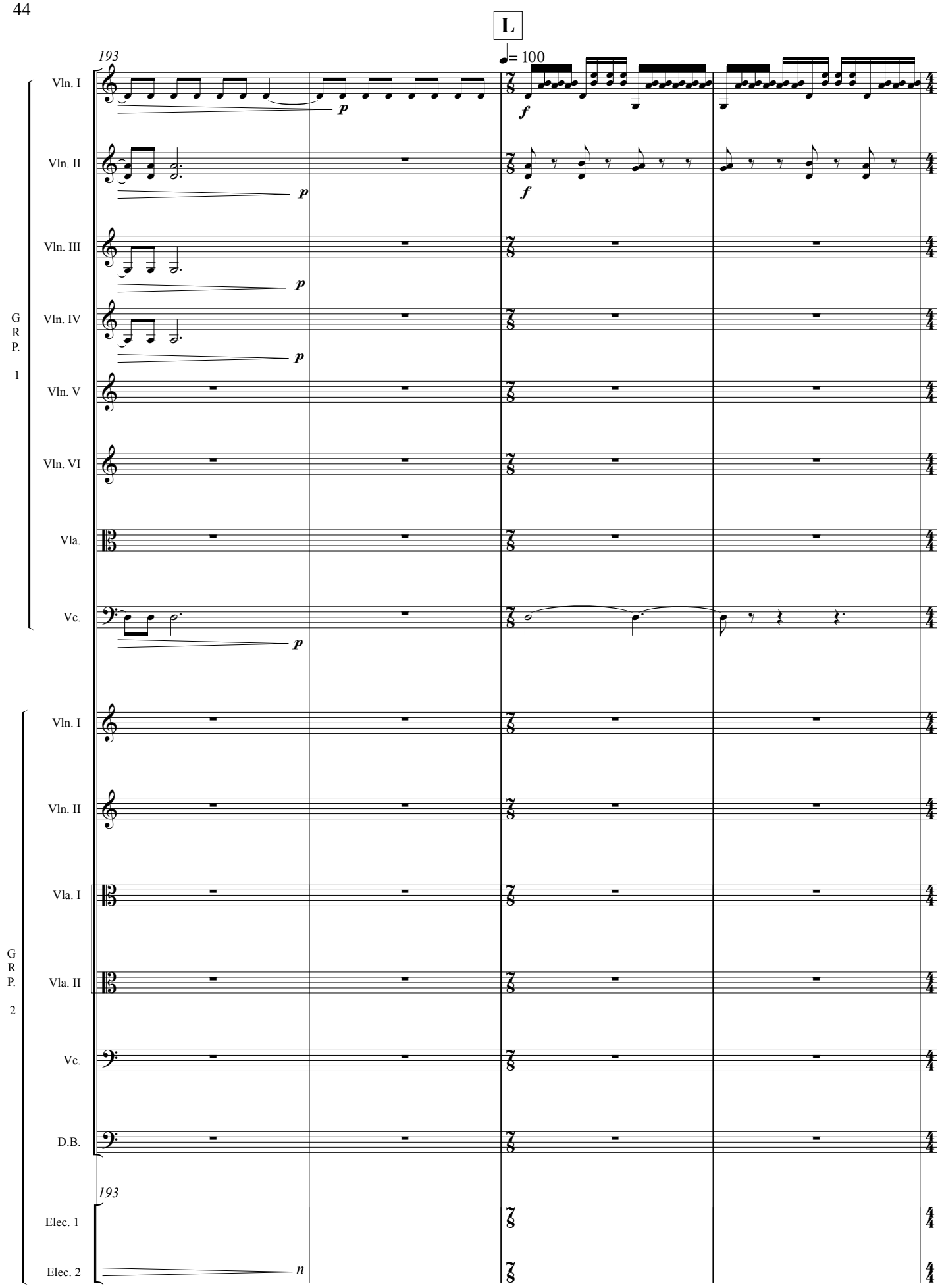

rit. until m. 178
173
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
mf
mp
p
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
173
Elec. 1
Elec. 2
n

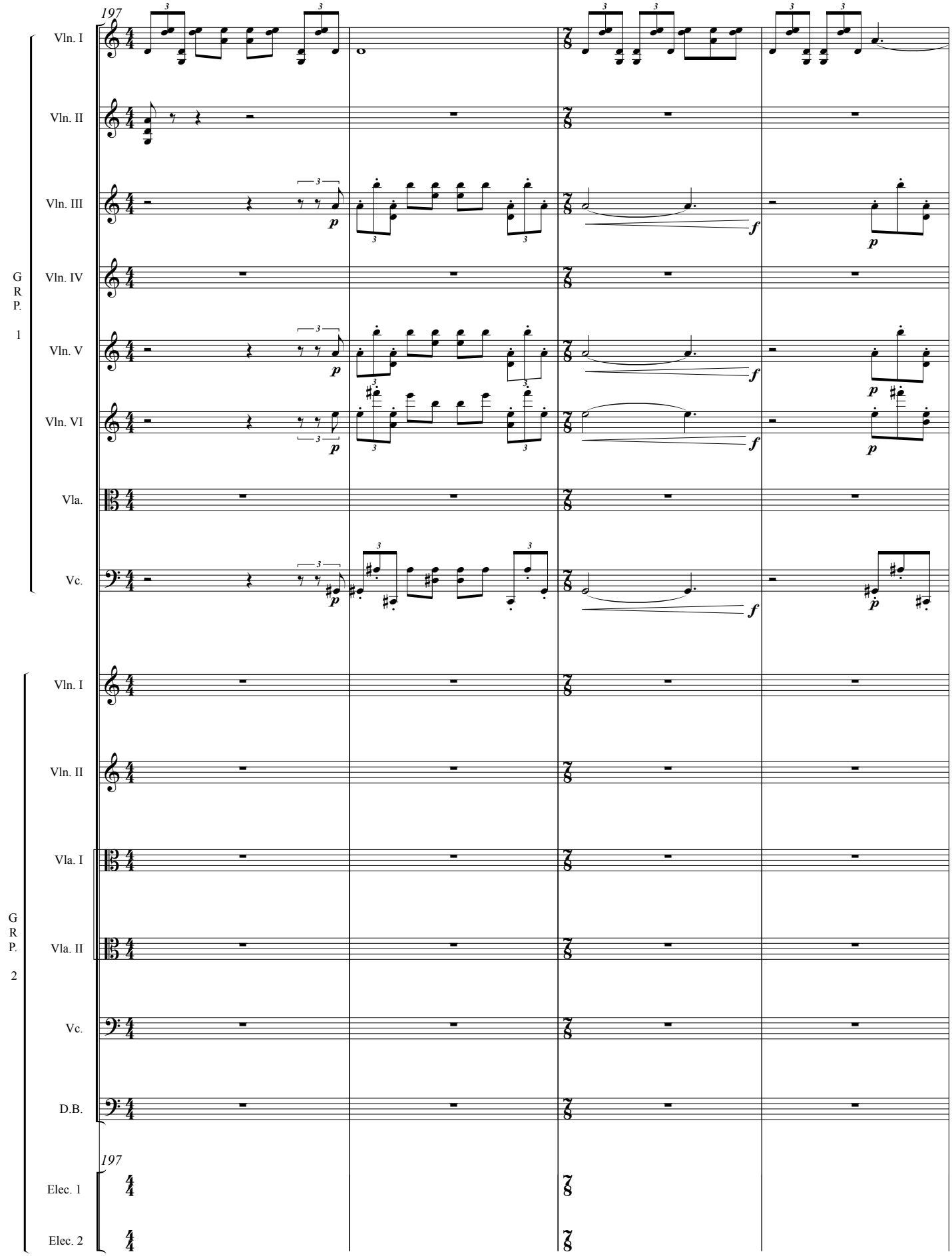

K
177
♩= 60
Vln. I
Vln. II
Vln. III
Vln. IV
GRP. 1
Vln. V
Vln. VI
Vla.
Vc.
sul pont.
p
ord.
sul pont.
sul tasto
ord.
sul tasto
ord.
Vln. I
Vln. II
Vla. I
Vla. II
GRP. 2
Vc.
D.B.
177
Elec. 1
Elec. 2
Cue 16
Channel 1
Loop 1.25x speed
Transpose down = maj. 2nd
Channel 4
Loop 1.5x speed
Transposition up= 8ve + P5
Spatio = 1+2
add-3+4

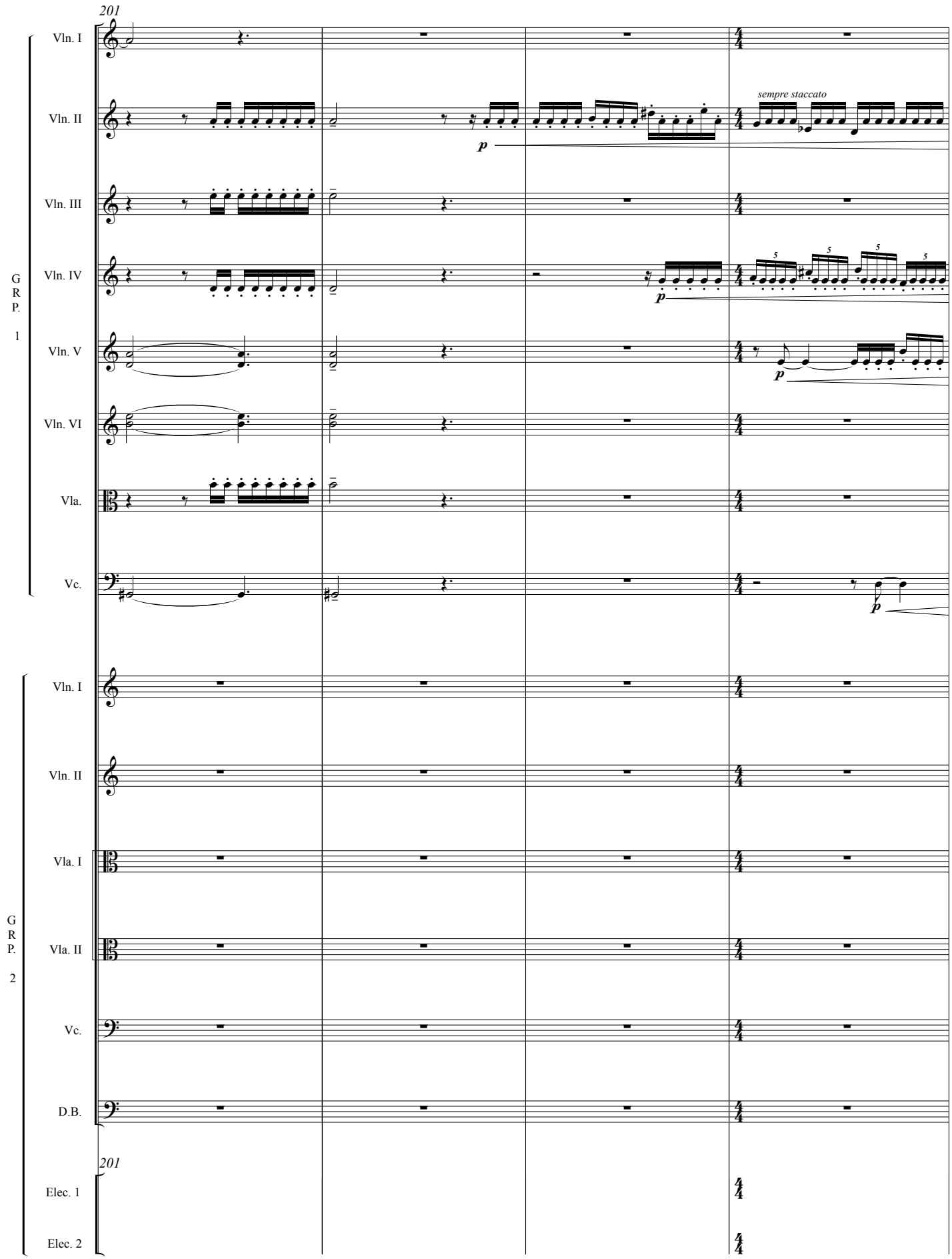

181
Vln. I
Vln. II
Vln. III
GRP. 1
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
p
mf
Vln. I
Vln. II
GRP. 2
Vla. I
Vla. II
Vc.
D.B.
sul pont.
sul tasto
f
pizz.
arco
mp
181
Elec. 1
Cue 17
channel 2
loop 1.75x speed
spatio = 4
Elec. 2

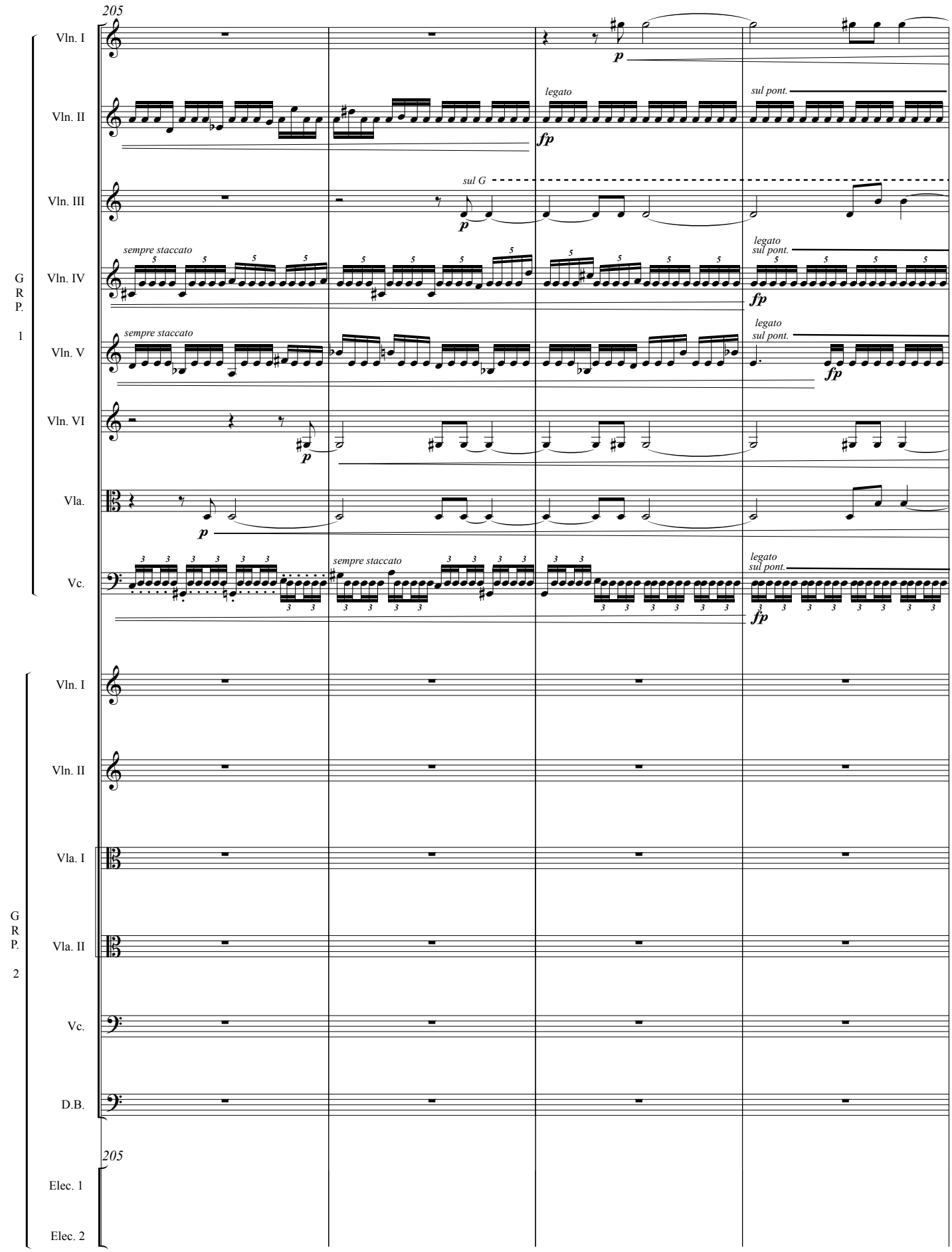

185
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
ord.
pizz.
arco
mp
f
p
Vla. I
Vla. II
D.B.
GRP. 2
ord.
jeté (bounce freely)
gliss.
185
Elec. 1
Elec. 2
Cue 18
Play buff D
Spatio = randomly select 1, 2, 3, 4
pp
elec. 2, random Sfz on 1,2,3,4

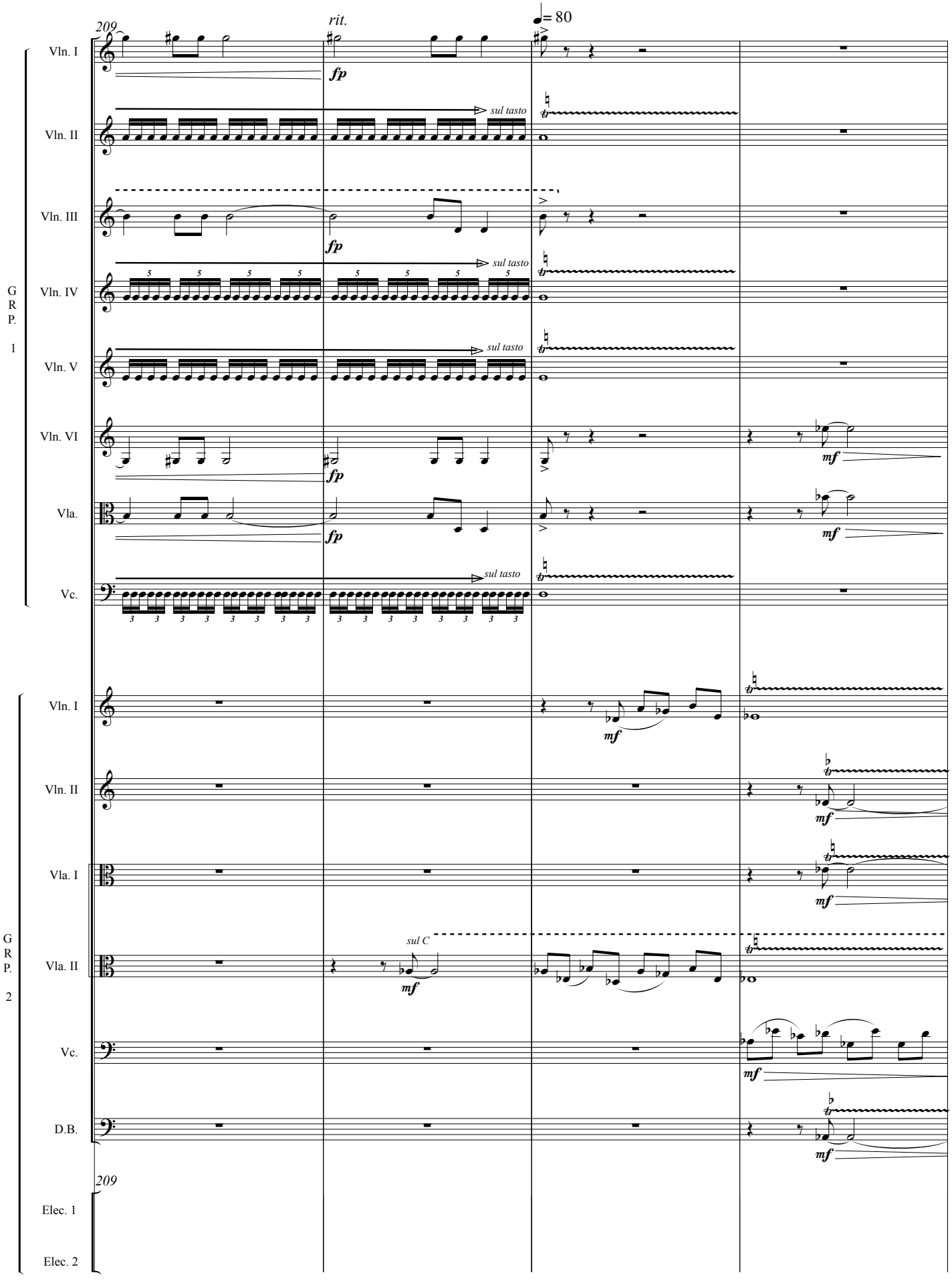

189
Vln. I
Vln. II
arco
Vln. III
Vln. IV
GRP. 1
Vln. V
Vln. VI
Vla.
Vc.
f
mp
Vln. I
Vln. II
Vla. I
ord.
GRP. 2
Vla. II
Vc.
D.B.
jeté (bounce freely)
189
Elec. 1
Elec. 2

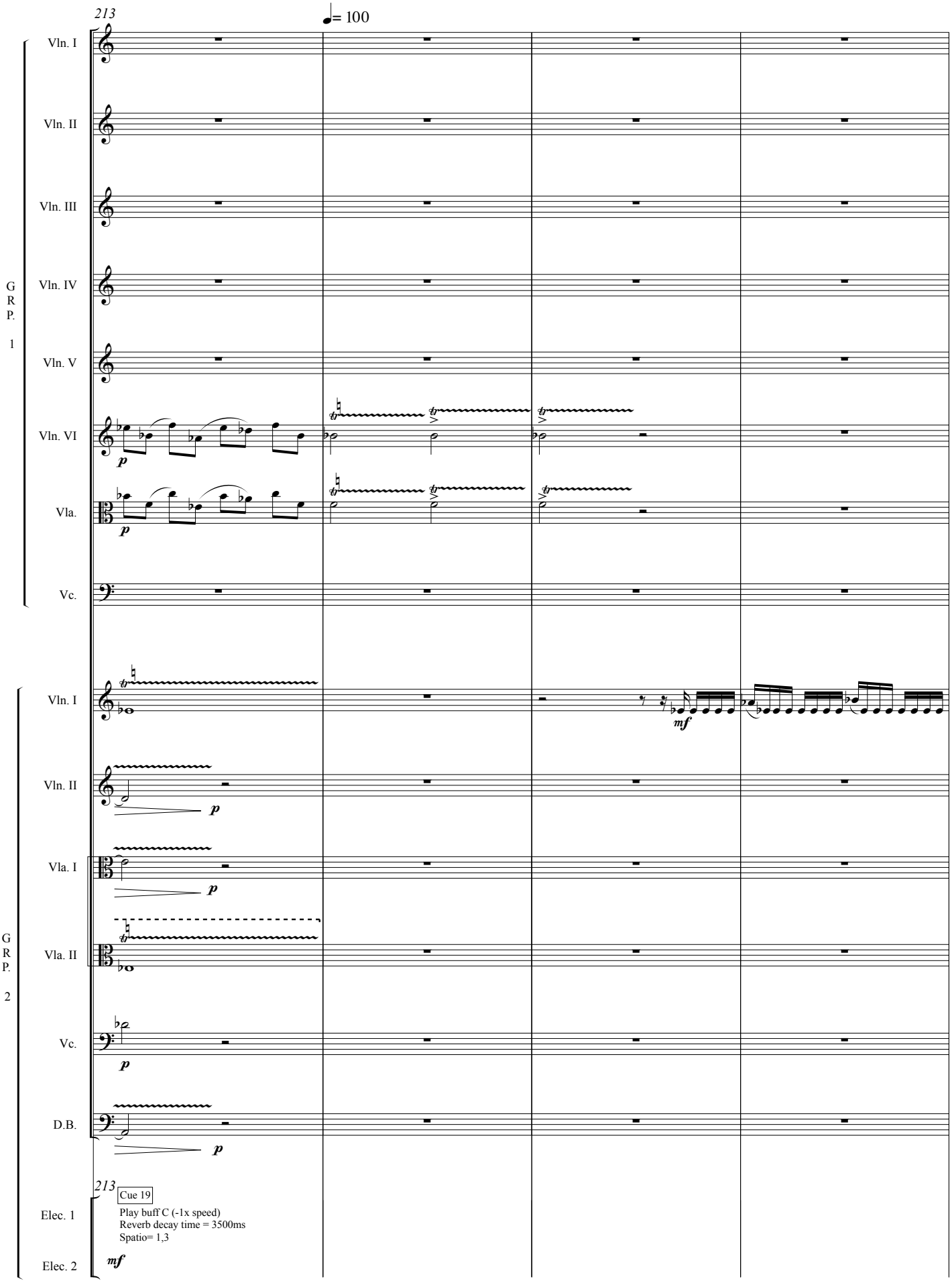

L
193
♩= 100
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
193
Elec. 1
Elec. 2
p
f
n

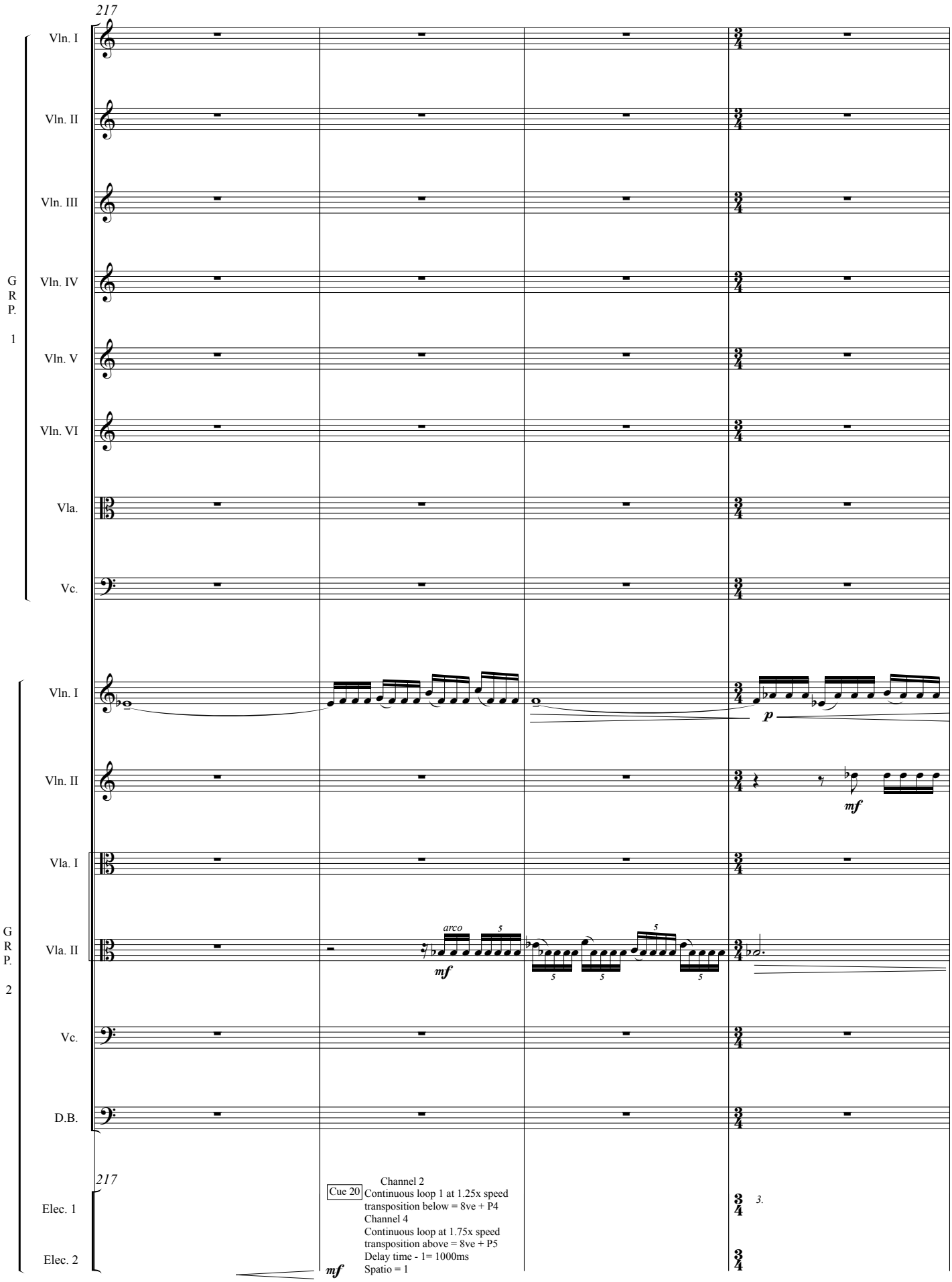

197
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
197
Elec. 1
Elec. 2

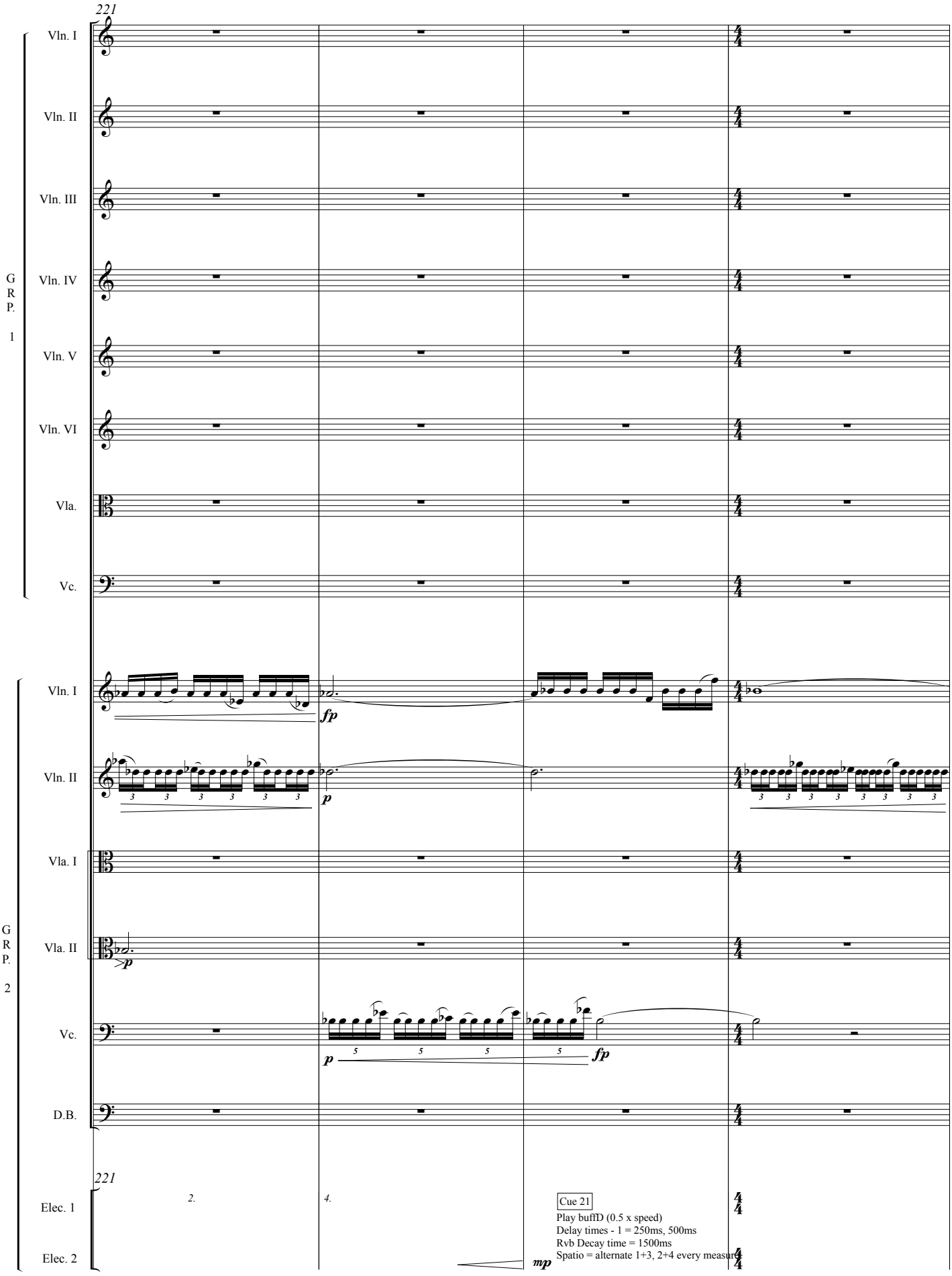

201
Vln. I
Vln. II
sempre staccato
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
201
Elec. 1
Elec. 2

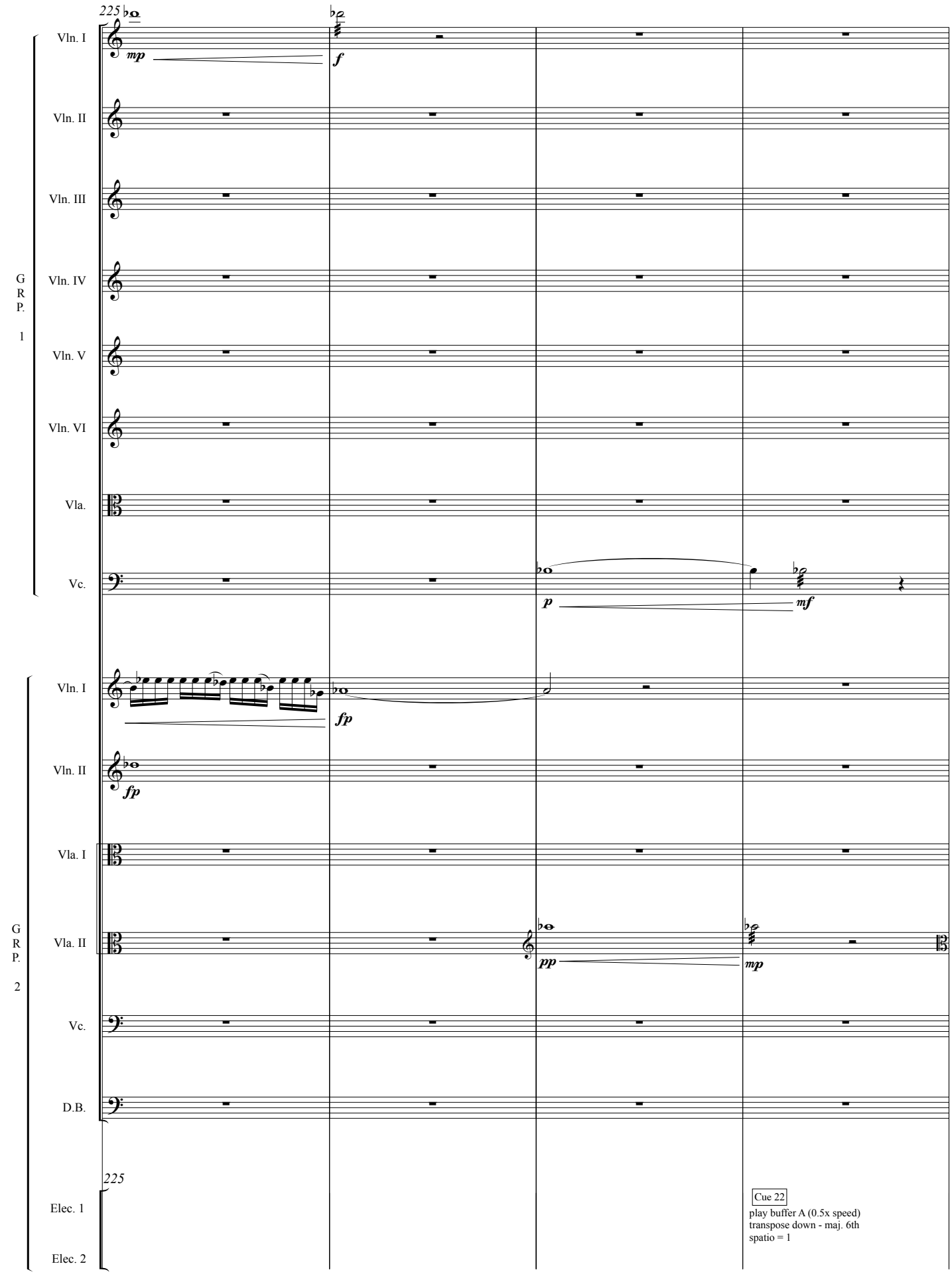

205
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
legato
sul pont.
sul G
sempre staccato
fp
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
205
Elec. 1
Elec. 2

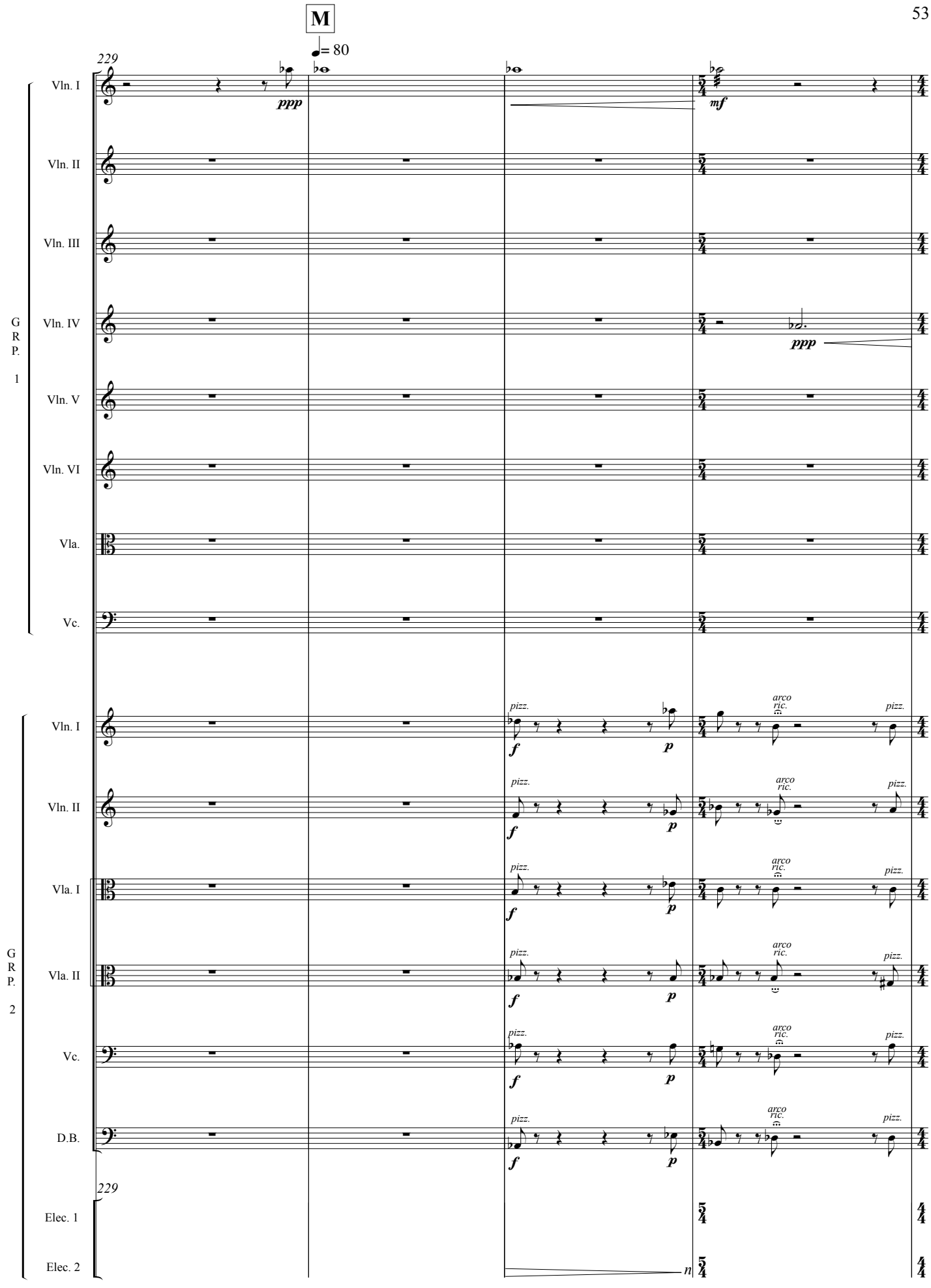

209
rit.
♩= 80
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul tasto
fp
mf
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
sul C
209
Elec. 1
Elec. 2

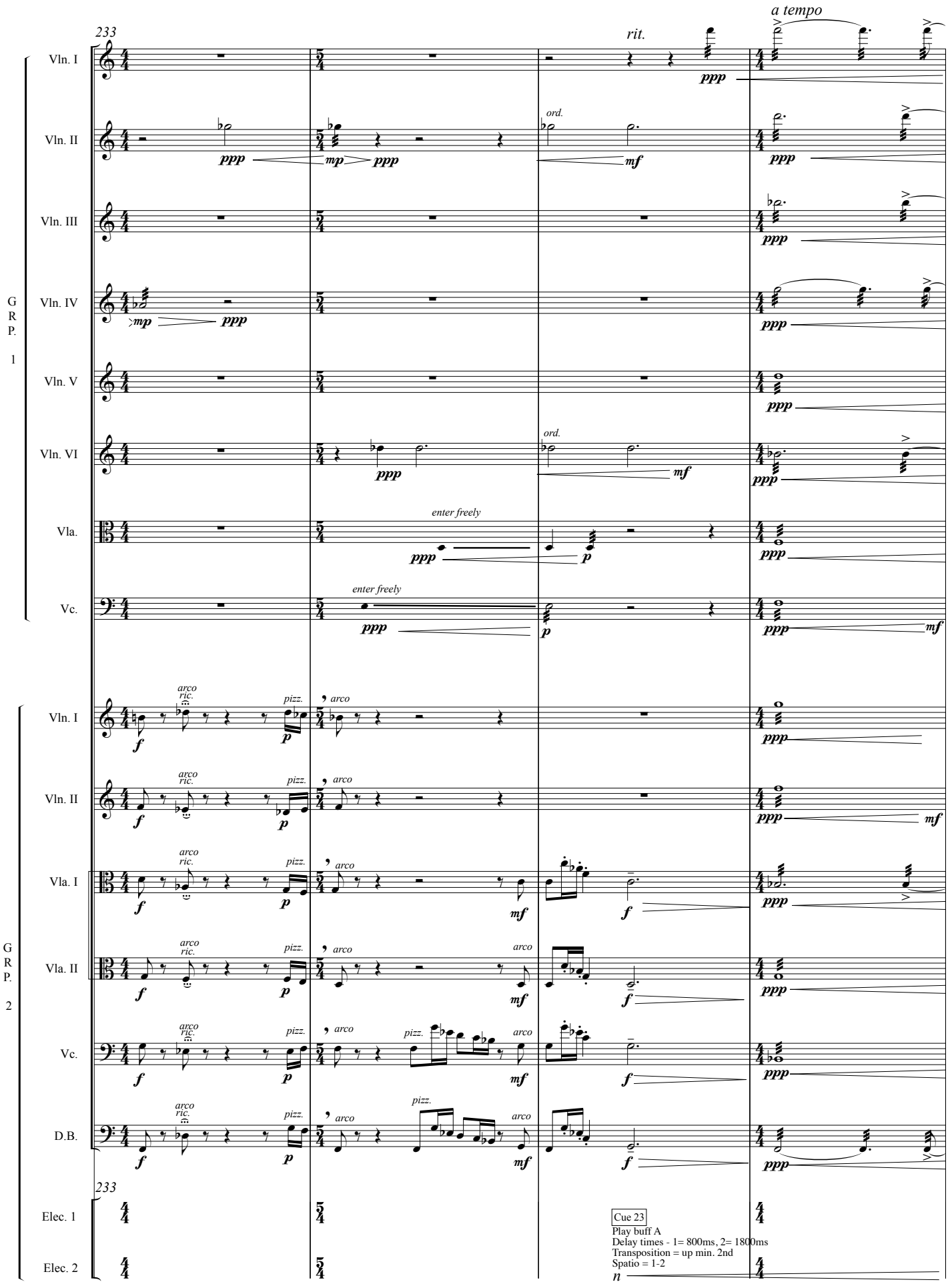

213
♩= 100
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
p
mf
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
213
Cue 19
Play buff C (-1x speed)
Reverb decay time = 3500ms
Spatio= 1,3
Elec. 1
Elec. 2
mf

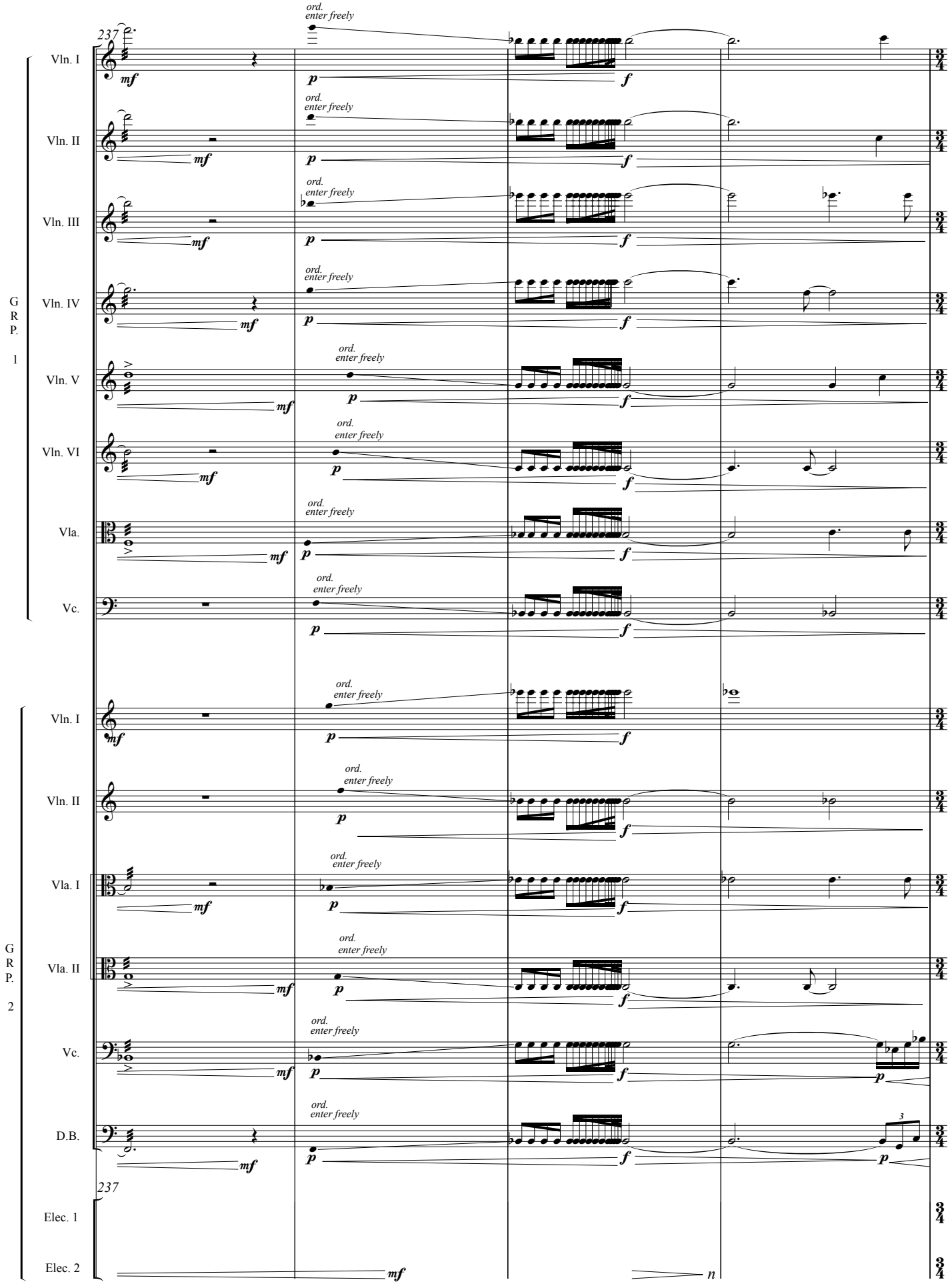

217
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
arco
mf
p
mf
5
Elec. 1
Elec. 2
217
Cue 20
Channel 2
Continuous loop 1 at 1.25x speed
transposition below = 8ve + P4
Channel 4
Continuous loop at 1.75x speed
transposition above = 8ve + P5
Delay time - 1= 1000ms
Spatio = 1
mf
3.

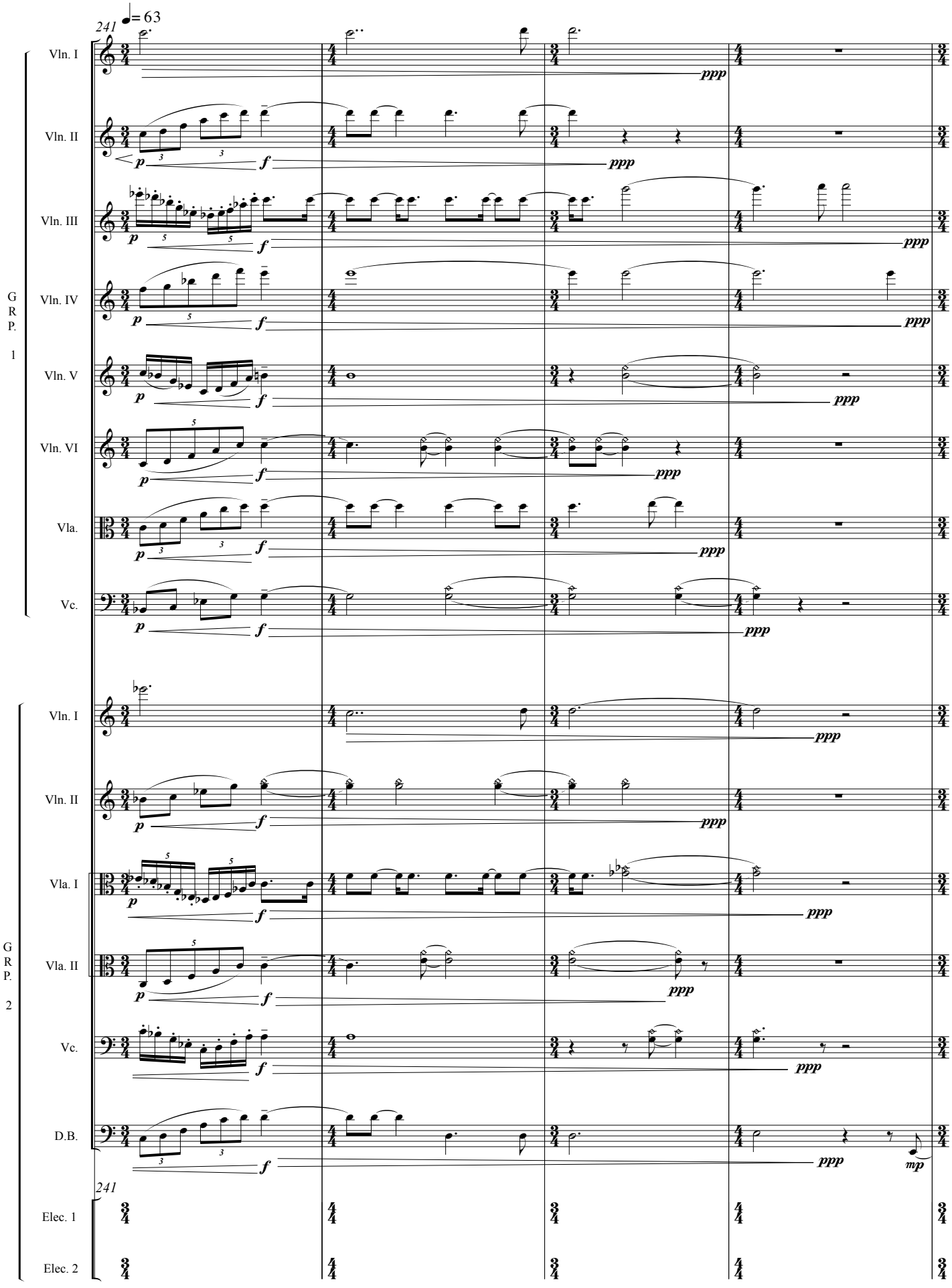

221
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
fp
p
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
p
fp
221
Elec. 1
Elec. 2
2.
4.
Cue 21
Play buffD (0.5 x speed)
Delay times - 1 = 250ms, 500ms
Rvb Decay time = 1500ms
Spatio = alternate 1+3, 2+4 every measure
mp


225
Vln. I
mp
f
Vln. II
Vln. III
GRP. 1
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
p
mf
Vln. I
fp
Vln. II
fp
Vla. I
GRP. 2
Vla. II
pp
mp
Vc.
D.B.
225
Elec. 1
Elec. 2
Cue 22
play buffer A (0.5x speed)
transpose down - maj. 6th
spatio = 1


M
♩= 80
229
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
ppp
mf
ppp
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
pizz.
arco
ric.
f
p
229
Elec. 1
Elec. 2
n


233
rit.
a tempo
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
ord.
enter freely
arco
ric.
pizz.
Vla. I
Vla. II
D.B.
GRP. 2
Elec. 1
Elec. 2
Cue 23
Play buff A
Delay times - 1= 800ms, 2= 1800ms
Transposition = up min. 2nd
Spatio = 1-2


237
ord.
enter freely
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vla. I
Vla. II
D.B.
GRP. 2
Elec. 1
Elec. 2
mf
p
f
n


241
♩= 63
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
241
Elec. 1
Elec. 2

N

= 54

245

GRP. 1

Vln. I

Vln. II

Vln. III

Vln. IV

Vln. V

Vln. VI

Vla.

Vc.

GRP. 2

Vln. I

Vln. II

Vla. I

Vla. II

Vc.

D.B.

245

Elec. 1

Elec. 2

f

mp

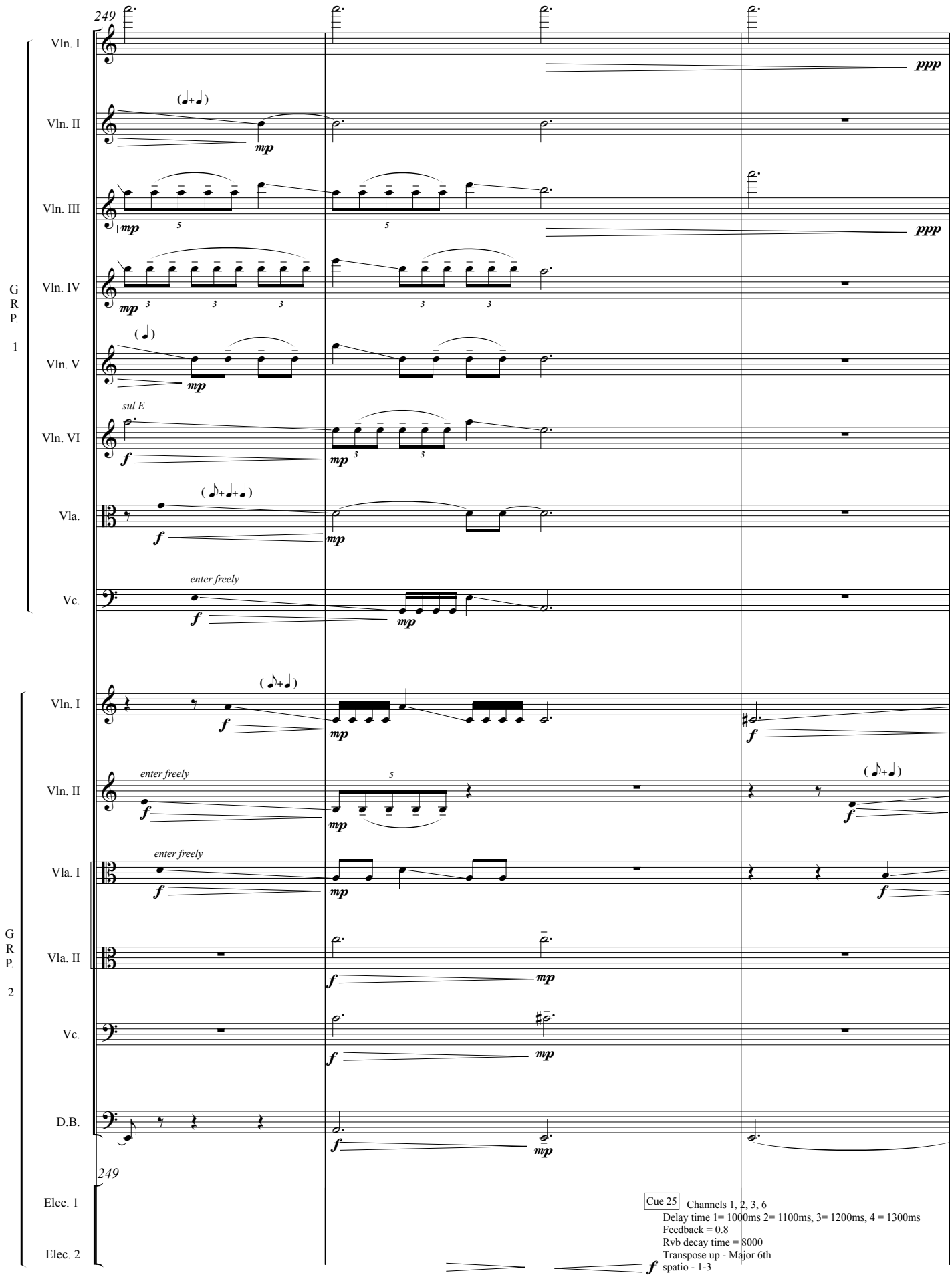
enter freely

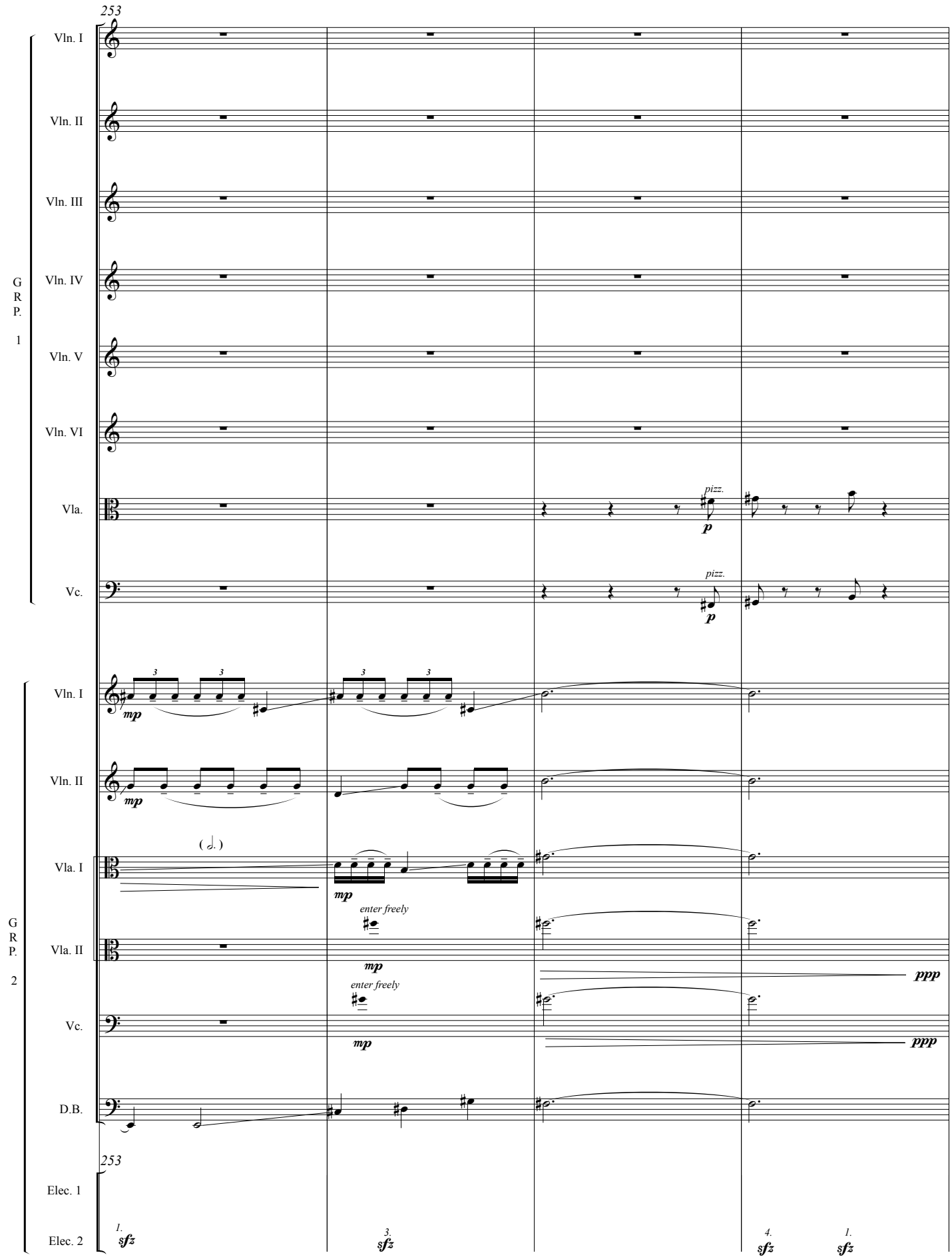
(𝅘𝅥𝅯+𝅗𝅥)

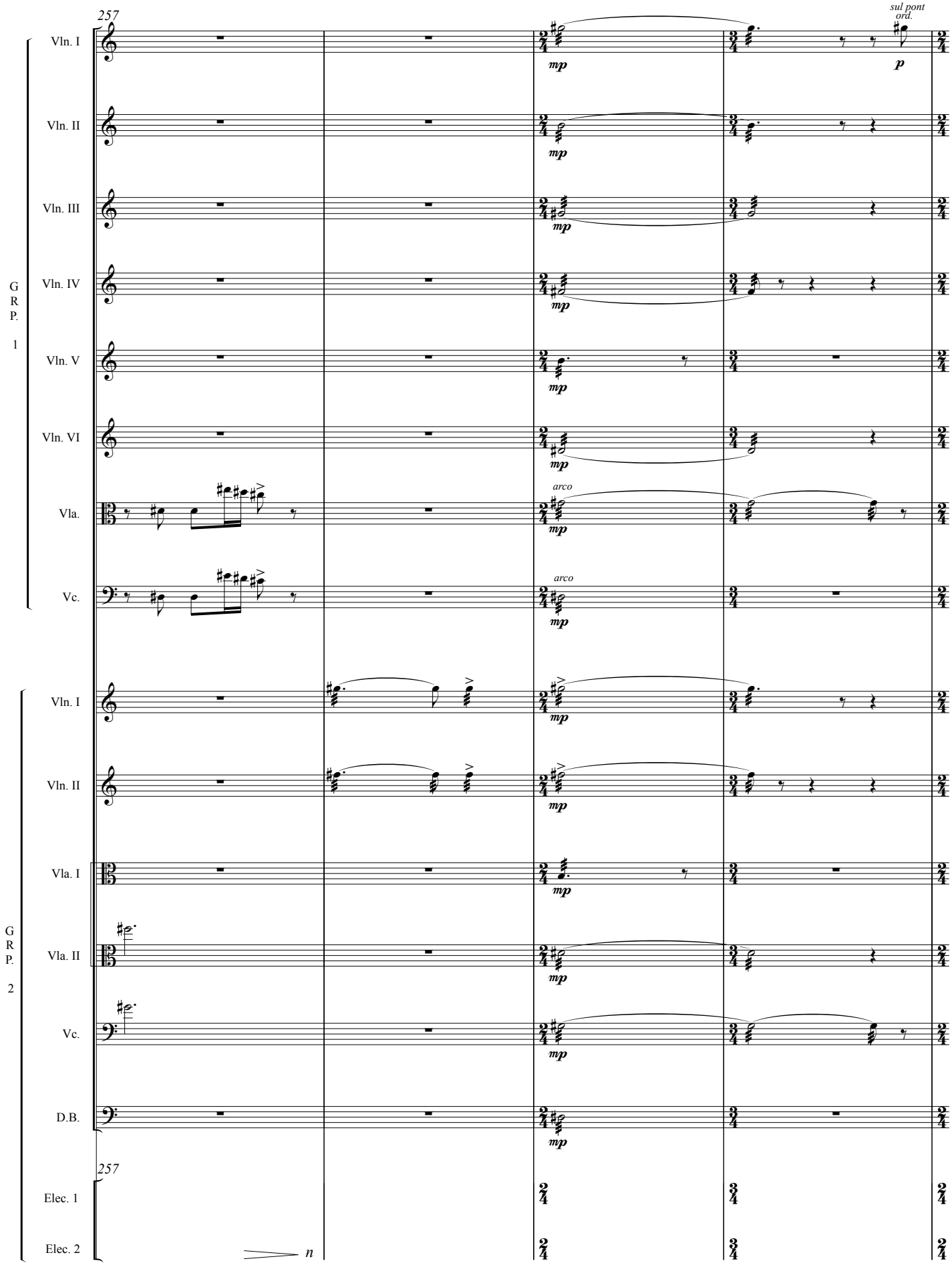
(𝅘𝅥𝅯+𝅗𝅥+𝅗𝅥)

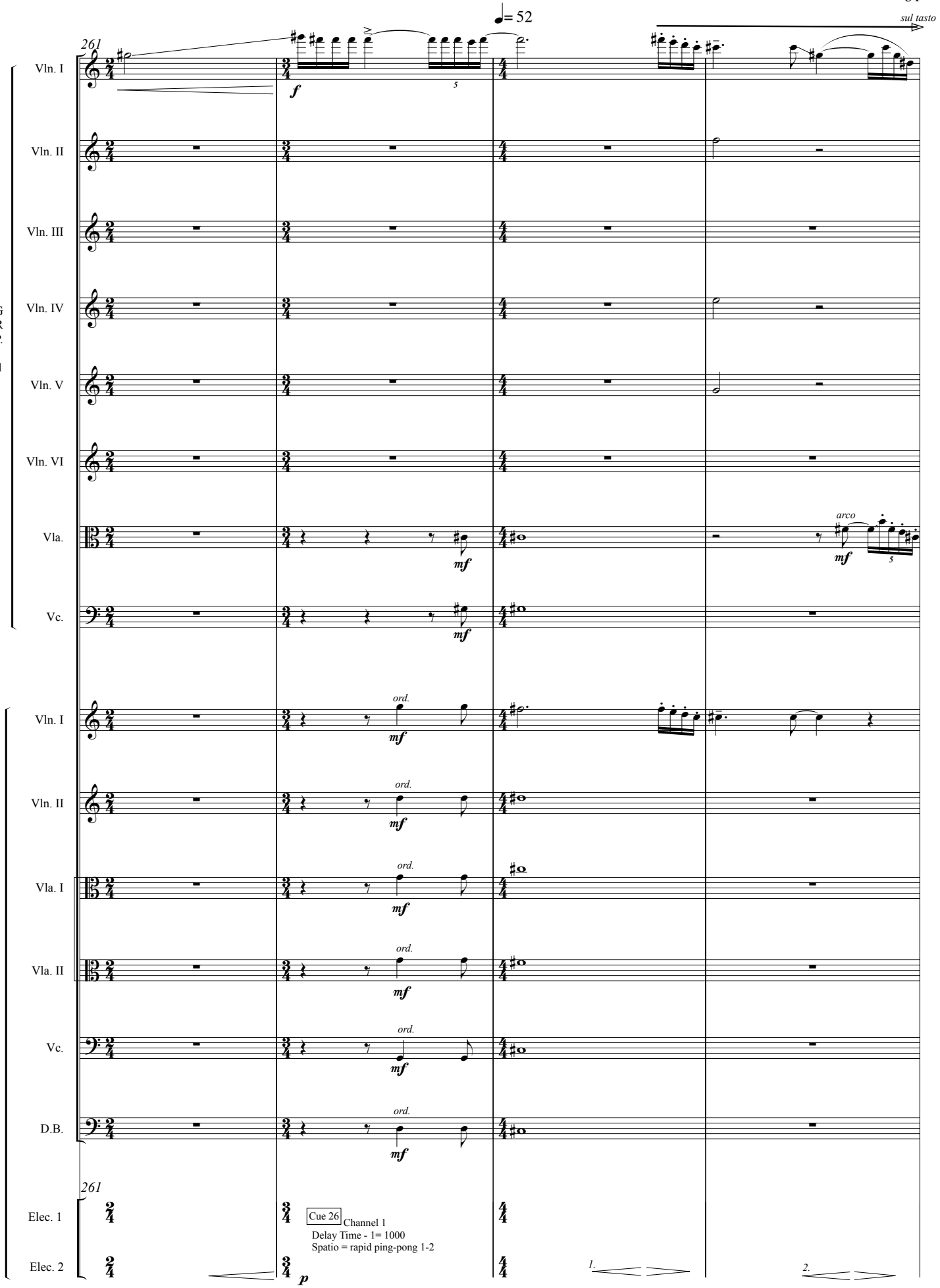
5

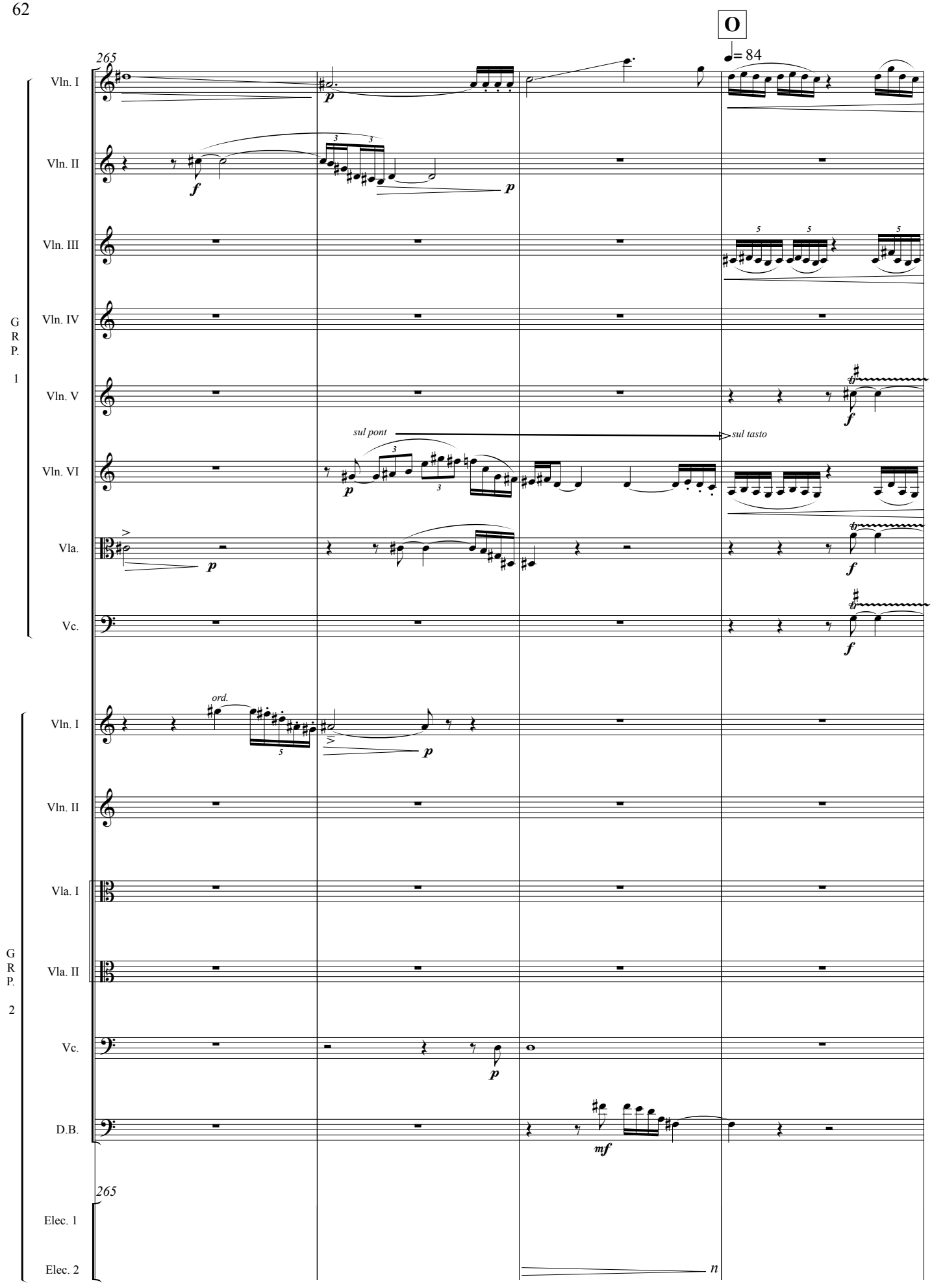
Cue 24 channel 2
Delay times - 1= 500ms, 2= 550ms, 3= 750ms, 4= 1500ms
Feedback = 1
Rvb decay time = 1500ms
Spatio = rapidly alternate 3, 4, 2

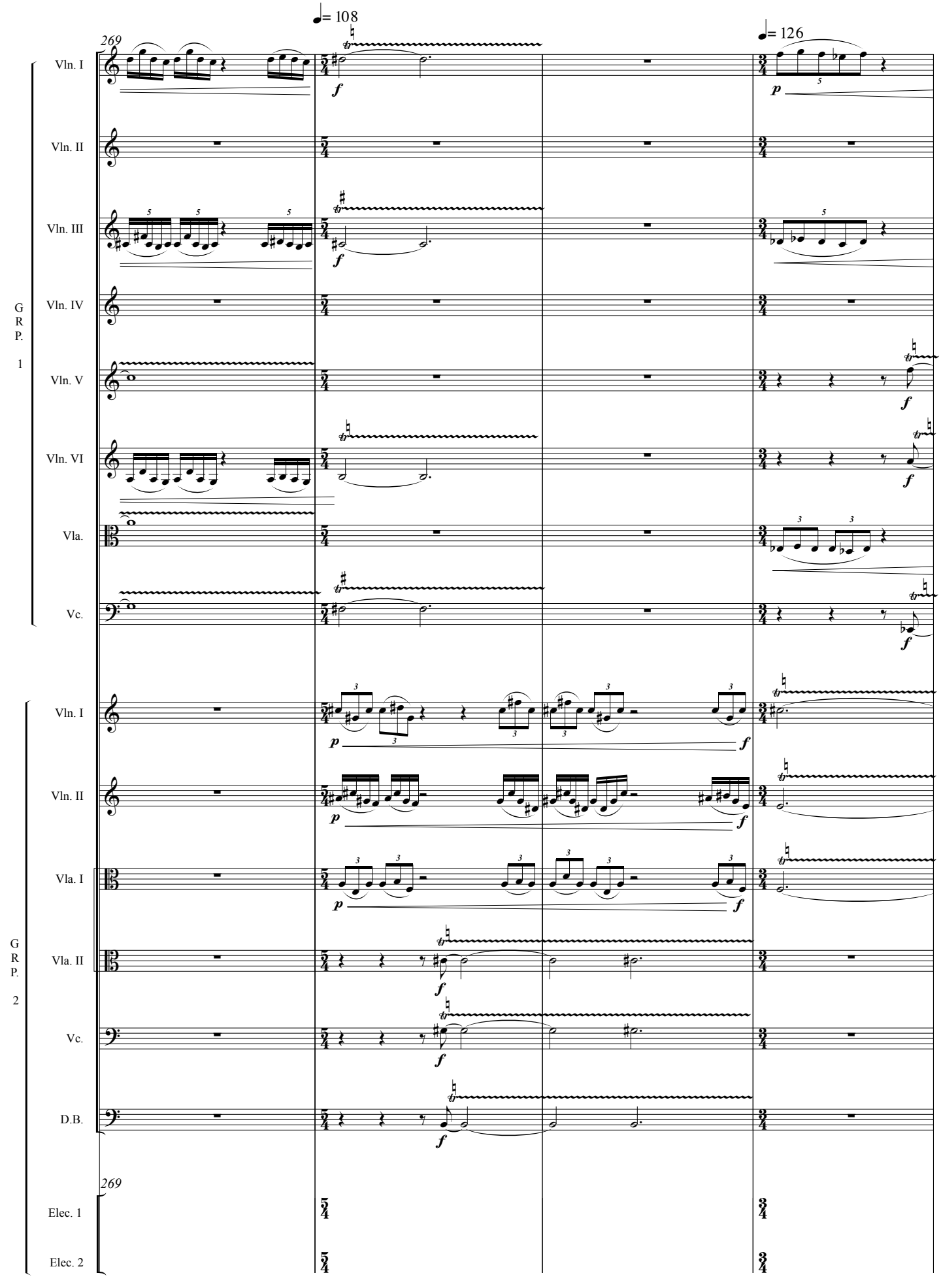

249
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul E
enter freely
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
249
Elec. 1
Elec. 2
Cue 25
Channels 1, 2, 3, 6
Delay time 1= 1000ms 2= 1100ms, 3= 1200ms, 4 = 1300ms
Feedback = 0.8
Rvb decay time = 8000
Transpose up - Major 6th
spatio - 1-3

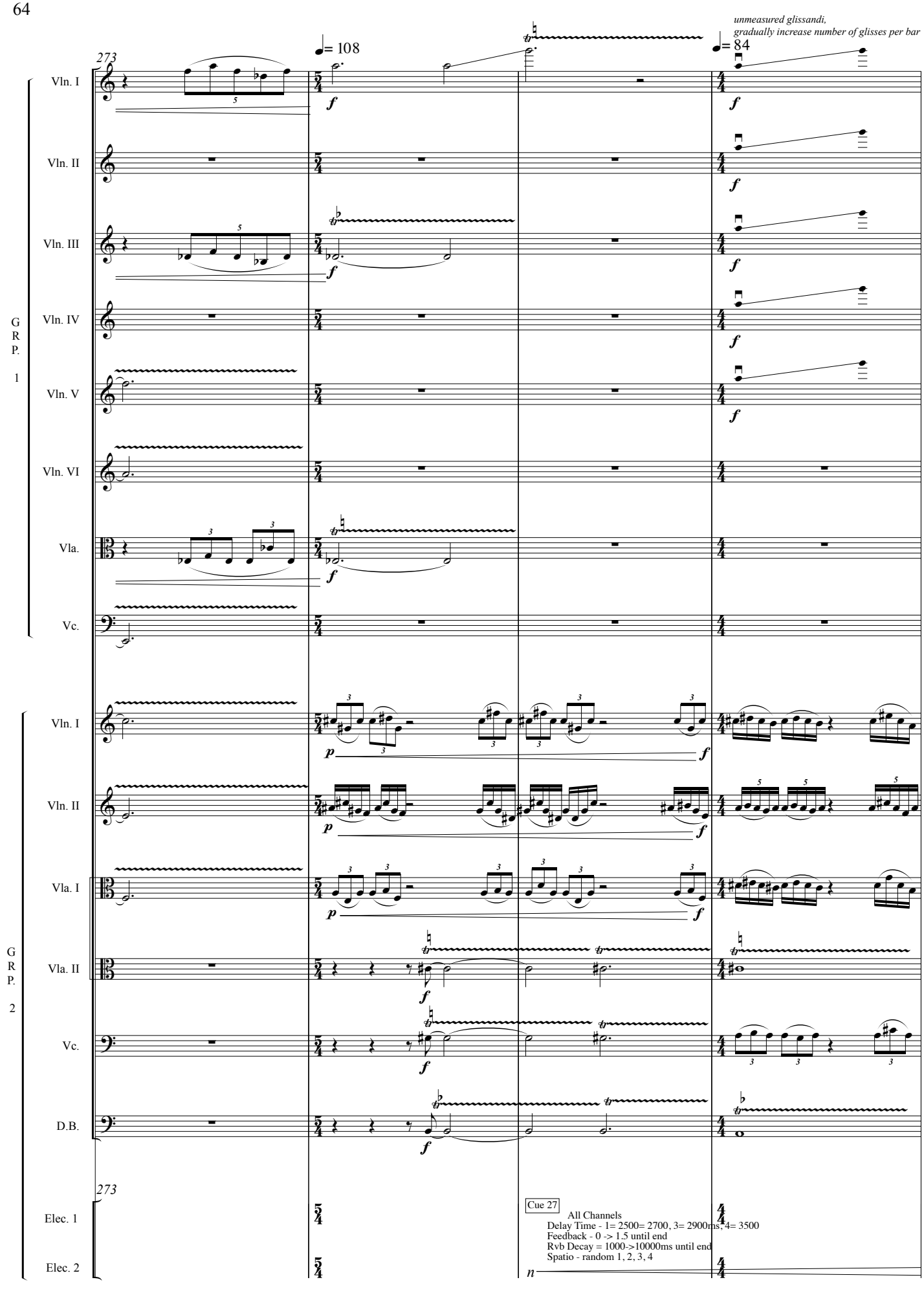

253
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
pizz.
p
pizz.
p
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
mp
mp
(𝅗𝅥.)
mp
enter freely
mp
enter freely
mp
ppp
ppp
253
Elec. 1
Elec. 2
1.
sfz
3.
sfz
4.
sfz
1.
sfz

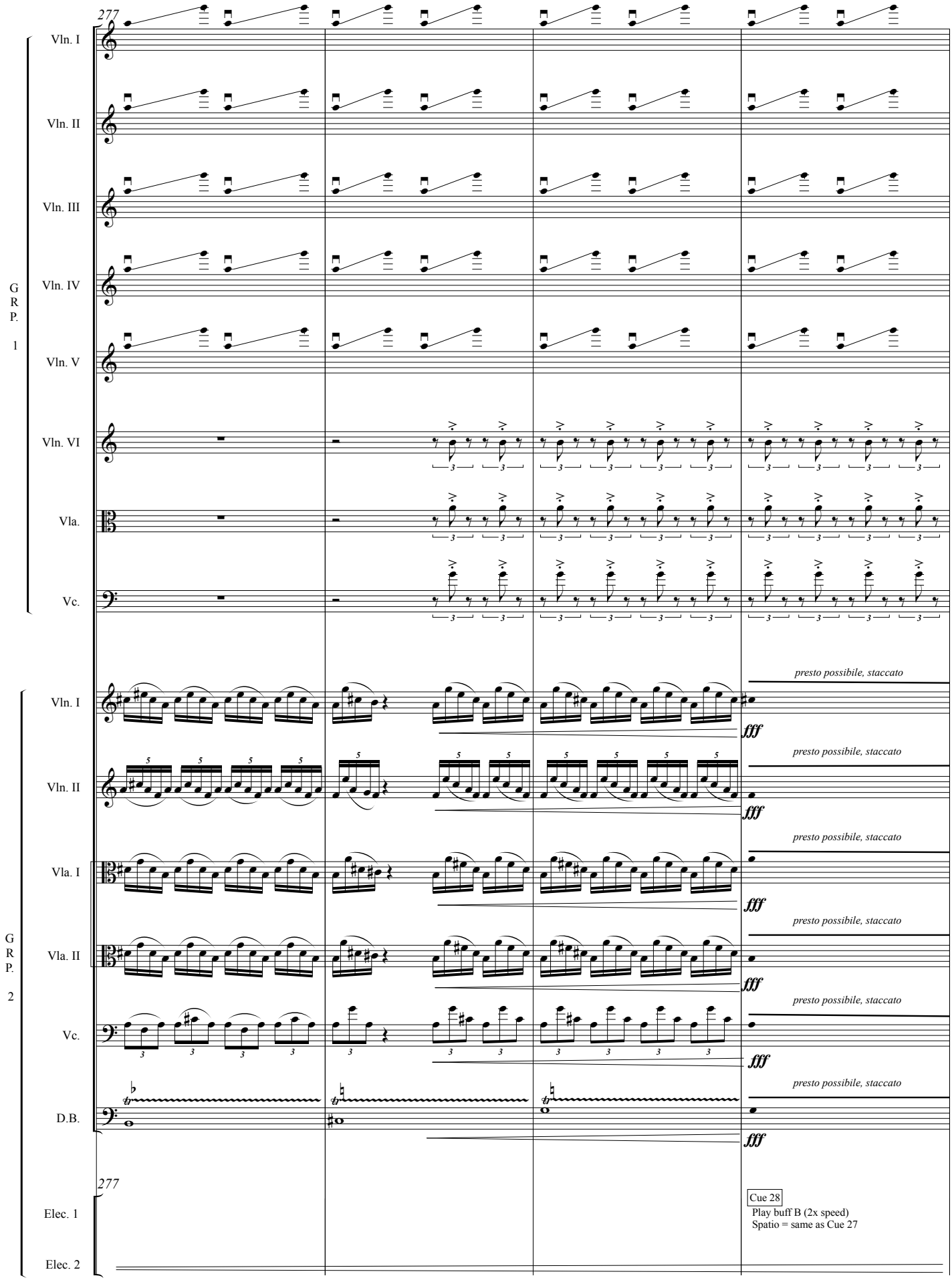

257
sul pont
ord.
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
arco
arco
mp
p
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
257
Elec. 1
Elec. 2
n

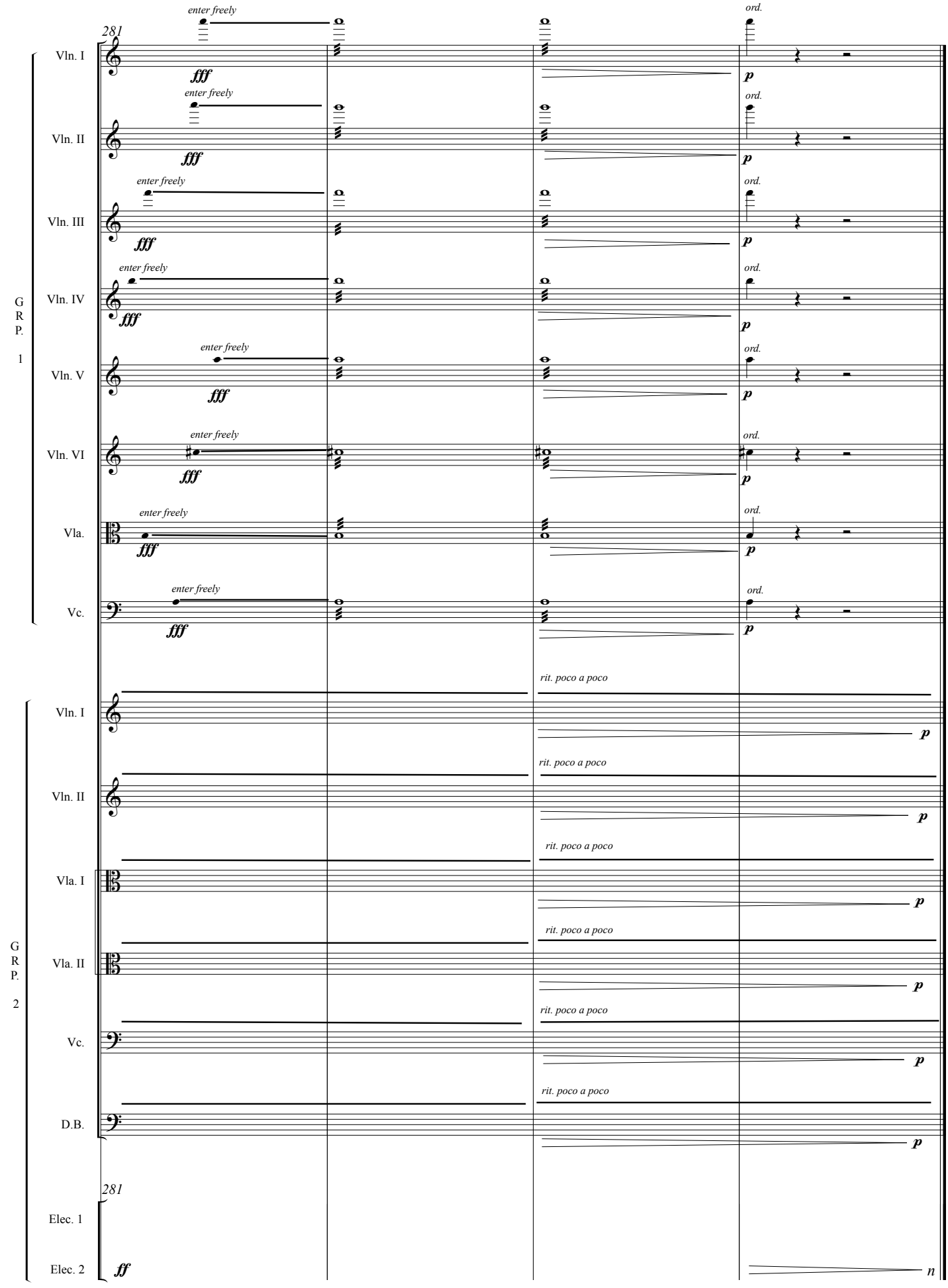

♩= 52
sul tasto
261
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
arco
ord.
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
261
Elec. 1
Elec. 2
Cue 26
Channel 1
Delay Time - 1= 1000
Spatio = rapid ping-pong 1-2
1.
2.


O
265
= 84
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
sul pont
sul tasto
ord.
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
265
Elec. 1
Elec. 2
n


269
♩= 108
♩= 126
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
269
Elec. 1
Elec. 2


273
♩= 108
♩= 84
unmeasured glissandi,
gradually increase number of glisses per bar
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
273
Elec. 1
Elec. 2
Cue 27
All Channels
Delay Time - 1= 2500= 2700, 3= 2900ms, 4= 3500
Feedback - 0 -> 1.5 until end
Rvb Decay = 1000->10000ms until end
Spatio - random 1, 2, 3, 4


277
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
presto possibile, staccato
fff
Vln. I
Vln. II
Vla. I
Vla. II
Vc.
D.B.
GRP. 2
277
Elec. 1
Elec. 2
Cue 28
Play buff B (2x speed)
Spatio = same as Cue 27


281
enter freely
fff
ord.
p
Vln. I
Vln. II
Vln. III
Vln. IV
Vln. V
Vln. VI
Vla.
Vc.
GRP. 1
rit. poco a poco
Vla. I
Vla. II
D.B.
GRP. 2
Elec. 1
Elec. 2
ff
n

Curriculum Vitae

Name:	Michael Lukaszuk
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